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Griffin's Shilling Manuals

EDITED BY

JOHN TIMBS.

CURIOSITIES  
OF ANIMAL  
AND VEGETABLE LIFE



LONDON

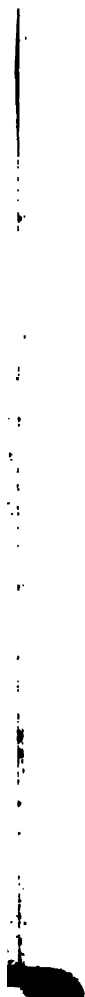
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# CURIOSITIES

OF

## ANIMAL AND VEGETABLE LIFE.

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### ANIMAL LIFE.

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#### DISTRIBUTION OF ANIMALS.

HUMBOLDT has strikingly remarked that, in considering the gradual extension of the dry land, shortly before the *disturbances* which, at longer or shorter intervals, caused the sudden destruction of so great a number of colossal vertebrata in the *diluvial period*, some parts of the present continental masses must have been completely separated from one another. There is a great similarity in South America and Australia between still living and extinct species of animals. In New Holland fossil remains of the Kangaroo have been found, and in New Zealand the semi-fossilized bones of an enormous bird resembling the ostrich, the *Dinornis* of Owen, which is nearly allied to the present Apteryx, and but little so to the recently extinct dodo of the island of Rodriguez.

#### THE LANGUAGE OF ANIMALS.

We know that there are many creatures on the earth which are utterly unconscious of the existence of man; and we might, if we were not too proud, ask ourselves, in like manner, if there may not be many things in the animal creation of which man is necessarily unconscious. If we walk through the woods on a bright summer day, or sit under the oaken or beechen shadows, we are conscious of a tide and tremor of life around us. We hear the birds singing, twittering, and chattering, each species with its own peculiar note. We hear the bees and the flies buzz

with more or less vigour, pertinacity, and volume of sound ; while a faint echo comes from the distant pastures of the bleating of sheep, the lowing of cattle, the barking of the shepherds' dogs, and the lusty crowing of the cock in the farm-yard. We ask ourselves whether all these various sounds may not be as many languages, perfectly intelligible to the creatures which speak them to each other, though unintelligible to us. We know that some animals—the dog especially—understand many words that we employ, if we speak emphatically, and that he will do what we tell him ; but if we do not understand what one dog says to another, whose fault is it—ours or the dog's?

### INTELLIGENCE OF ANIMALS.

Mr. J. Shaw, in a communication to the *Athenæum*, remarks : "When passing in review that large stock of well-accredited and interesting anecdotes relating to the instincts and intelligence of quadrupeds and birds, which now forms no inconsiderable part of our literature, it will be found that a very large proportion of the cunning, wariness, and even what we may call noble qualities of these creatures, depends either on their training by man, or on the necessity of eluding his grasp, as their most deadly foe. Taking the case of the sheep-dog, I have made inquiries from old and intelligent shepherds, and find they are of opinion that during the last half-century, owing to the greater care taken of sheep, from their increased value, and the employment of more skilful shepherds, anxious and careful to select the wisest and best dogs, that the breed of sheep-dogs has progressed in docility and acuteness. As a great amount of pains is necessarily taken to weed out our vicious and stupid domestic animals, and obtain those whose mental qualities fit them best for their various employments, we can easily conceive that the same animal would reach greater perfection under the training and breeding of skilful masters, requiring it for delicate and responsible purposes, than under that of drovers, and that many of its most surprising faculties would lie dormant under no human training at all. Wild beasts, again, are quite unable to compete either with man singly, or aided by his well-trained animals, without bringing into play more subtle qualities than size, speed, or strength. The sagacity of the rat and fox seems quickened and developed to elude the snares of man or the cunning of his selected agents. The greater shyness and wariness of our large birds compared to those in uninhabited regions, and the ease with which civilized man can extirpate quadrupeds formidable

to savages, and the difficulty which savages experience in keeping down rats and other pests introduced from the centres of civilization, are facts which give weight to the inference that the pre-human quadrupeds and birds were less sagacious, wary, and teachable than those now existing; and that the elks, elephants, dogs, and lions that roamed over Europe previous to the human period, were able to keep their ground more, perhaps, by strength, but less by brain, while even those of high special instincts, like the beaver, were deficient in versatility."

### ZOOLOGICAL LEGENDS.

"When an erroneous notion is once put in the form of an illustration to a scientific work, the tenacity with which it remains unaltered is wonderful. No matter how absurd, it is copied over and over again. In Prof. Gervais's recent *Elémens de Zoologie*, a work intended to be an official school-book for France, there are surprising instances of this. In an illustration of the nidification of the flamingo, that bird is represented straddling on a tall, conical nest of mud. This is an old and often refuted fable. We have few observations of the incubation of flamingoes; but it is certain that, like all other birds, they sit upon their nests with their legs bent under their body, in which position the length of those limbs is no inconvenience whatever."

We quote the above from the *Athenæum*, wherein also is noticed the repetition by M. Sonrel's *Bottom of the Sea*, translated by Elihu Rich, the zoological part of which is poor throughout, and often erroneous, "repeating the fable that the Paper Nautilus uses its dorsal arms as sails, and the arms are talked of as membranes, though any museum specimen would show them to be muscular. M. Sonrel fixes the number of teeth in sharks at 130, whereas they are by no means definite in number. The electric eel and the electric ray are called 'depositories of thunder'—a peculiarly unfortunate description; for, notwithstanding their powers of giving shocks, they do not even make a crackling sound; then the stories of the combat of the sword-fish and the whale, and that of a wounded cachalot disgorging a shark sixteen feet long, are hard to swallow."—*Year-Book of Feasts*, 1871.

### SOME MARVELLOUS ANIMALS RECORDED BY THE ANCIENTS.

*Writing Elephants.*—Cælius Rhodiginus says that elephants have been sometimes known to write.

*Large Tortoises.*—Diodorus Siculus tells us that the tortoises in the Indian Sea are so large that people sail in their shells on the rivers, even as well as in little cock-boats.

*A Bull Changing his Colour like the Cameleon.*—Macrobius describes a wonderful bull in the city of Hermynta that the people worshipped, which changed his colour every hour of the day.

*Double-hearted Partridges.*—Theophrastus tells us that the partridges of Paphlagonia have two hearts in their bodies.

*Large Ants.*—Rhodius says the ants in India are larger than foxes.

*Men whose Hearts have been Covered with Hair.*—Pliny tells us that men have been found with their hearts rough or hairy; and he that hath it so is a valiant man, and stoutly disposed,—as was experimented in the dissection of Aristomenes, who with his own hand slew three hundred Lacedemonians in one battle.

*An Incombustible Heart.*—Suetonius Tranquillus, in his *Life of Caligula* says—and Pliny says the same—if a man die by poison his heart cannot be burned, although it be thrown into the very hottest fire,—as was verified by the heart of Germanicus, the father of Caligula.

*Some Men Walk after their Heads are Cut Off.*—Averoes de Med. saith that he saw a poor unfortunate patient, who, having his head taken off, walked to and fro for a small while, in sight of all the people. It is also written of Dionysius Aeropagita that, after his head was smitten off, he walked certain paces. Some say it was a league and more from the place of his execution. St. Denys did the same.

*A Talking Ox.*—Livy gravely relates that an ox, in full market, cried out—"Rome! take care of thyself."

*A Talking Dog.*—Pliny, in his eighth book, tells us that a dog spoke when Tarquin was driven from the throne.

*A Talking Rook.*—Suetonius says a rook exclaimed in the Capitol, when they were going to assassinate Domitian, "*Estai panta kalos.*"—Well done; or, All is well.

*An Old Gentleman who Drank no Liquid.*—Pliny, in his *Natural History*, tells of a gentleman, whose name was Julius Fiator, at Rome, who, having been prescribed not to drink largely, in his old age forbore to drink at all. Cœlius Rhodius tells a similar story of one of the Tomacelli of Naples.

*A Man Losing Fifty-seven Years of his Life by Sleep.*—Pliny tells of Epimenides, the Gnostic, who, when a boy, being wearied with heat and travel, laid himself down in a certain place, and there slept fifty-seven years; then awakening, he very

much marvelled (like Nourjahad) at the great changes he observed in the world.—*Pliny's Nat. Hist.*

*People Living to Two Hundred Years.*—Pliny says that there is a race of Indians inhabiting certain valleys who live to the age of two hundred; that, when young, their hair is white, but blackens as they grow old. Sir John Sinclair speaks of a too-salubrious valley which people are obliged to move *from* for fear of living for ever.

*Men with Dogs' Heads and Tails, and Fountains of Liquid Gold.*—Pliny tells of men in India with dogs' heads; others with only one leg, though perfect Achilles' for swiftness of foot; of a nation of pigmies; of some who lived by the smell; of tribes who had only one eye in their forehead; and of some whose ears hung down to the ground. Ctesias, as cited by Photius, talks of fountains of liquid gold, and of men with tails, in India—true, we ought to remember, that Fernando Alarchon, a Spanish voyager of undoubted credit, saw men with tails on the coast of California; and that several others have seen men with dogs' heads. Monboddó rejoiced at this testimony, although Alarchon tells us that these tails were discovered to be fictitious; and we are also assured that the dog-headed men were found to wear vizards. As to the fountains of gold, the Indian legends say so metaphorically, and so they are credited as real.—*Mickle's Lusiad.*

*A Pair of Pious though Pagan Pigeons.*—By the story of the Dodonian oracle, in Epirus, we learn that two pigeons flew out of (Egyptian) Thebes, from the temple of Belus, erected there by the ancient Sacrists; and that one of these fled eastward into Lybia and the Deserts of Africa, and the other into Greece, namely, to Dodon; and these communicated the divine mysteries to one another, and afterwards gave mystical solutions to the devout inquirers. First, the Dodonian pigeon, perching upon an oak, spoke audibly to the people there, that the gods commanded them to build an oracle or temple to Jupiter in that place—which was accordingly done. The other pigeon did the like on a hill in Africa, where it commanded them to build another to Jupiter Ammon or Hammon.

*A Compact Set of Teeth without Division.*—Valerius Maximus says that the son of Prusias, King of Bithynia, instead of separate teeth in the upper jaw, had one solid undivided piece from side to side.

*A Serpent One Hundred and Twenty Feet Long.*—The same author says that the artillery of Regulus, in Africa, had to contend with, and at length killed, such a serpent by stoning him. The serpent's hide was sent to Rome.





Among the more advanced nations of Europe the ox has been in a good measure superseded by the horse; and to discard him for mere labour is evidence of civilization. It is remarkable that, unlike the ox and the ass, the horse is at present nowhere found in its original state. Even the wild horse which was supposed to exist in the mountains of Thibet turns out to be only one of the donkeys to be seen in our Zoological Gardens. The disappearance of the horse from his wild state is probably to be accounted for, from his natural *habitat* being the open plain, where he could be most easily captured. Mr. Craufurd mentions that the notion that all the different races of the horse have proceeded from one original stock has no warranty in history. "Scattered as they are over the greater part of the old world, consisting of widely different varieties, and considering the extremely rude state of the intercourse, but especially of maritime intercourse, of the early nations, most of whom were even ignorant of each other's existence, it is difficult even to imagine that all the horses of the world were derived from a single stock." Most emphatically does he insist on the distinction between the horse and the pony, affirming that no change in climate or skill in breeding, supposing there be no crossing, will convert one into the other. In fact, he utterly ignores the witness in the horse case who deposed to the identity of a celebrated racer by declaring that he had known him ever since he was a pony. Moreover, he conceives that the first domestication of the horse must have been very remote indeed; for the ease with which it is accomplished is illustrated by the American Indians, who domesticated the horse, already become wild, within fifty years of the discovery of the New World. The horse was ridden before it was applied to agricultural and other useful labours, although there is no authentic account of the use of the stirrup before the seventh century. It is only in very advanced periods of society that it is used for draught, and this chiefly in modern Europe, where the horses are of superior size, weight, and strength. Throughout all Asia, and, indeed, throughout the greater part of Eastern Europe, the horse is nearly unknown for draught, either in plough or carriage, while with ourselves it has superseded the ox. The bridle was the first form of man's dominion over him, on which Cuvier remarks, that its application depends on the toothless space for the insertion of the bit between his molar and canine teeth.

The above remark applies also to the ass, whose mouth in this respect differs from that of the horse only in being less sensitive. The ass was probably domesticated earlier than the

horse, and passed into Greece from Egypt, and thence over Europe. But in Gaul and Germany it was not known in the time of Alexander: it was rare in England in the reign of Elizabeth (though Julius Cæsar found the Britons using horses in their war chariots); and it is scarce in Scotland even now. In Denmark, Sweden, and Norway, it is still unknown as a domestic animal. The mule, the unfertile offspring of the horse and ass, could of course not have been known until after the domestication of both its parents; for the unnatural union which gives rise to it never takes place except under the constraint of man. It is not found represented on any of the ancient monuments of Egypt, on which the horse and the ass are so frequent, in this respect resembling the camel which, strange to say, is equally absent. The mule is first named in Scripture in the time of Isaiah; the camel was known to the Egyptians at the date of the Ishmaelites and their caravan in the time of Jacob, and even in the time of Abraham, for Pharaoh presented some to him as a gift. It is faithfully delineated on the monuments of Nineveh, while it is nowhere represented on any ancient Hindoo monument, as are the ox, the buffalo, the elephant, and the horse. The inference is that it was introduced by the strangers who introduced Hindooism into Upper India, and whom Mr. Craufurd refuses to term Aryans, after the manner of the philologists.

The hog is a very old acquaintance, though there is a mystery about his origin; "for much doubt has lately been thrown on his being the wild boar of Europe." Wherever it can find food the hog will thrive; and it was as universally eaten as it was universally present, until the Egyptians, Jews, and Mahomedans abjured it in succession. Mr. Craufurd rates its intelligence as well as its bacon very highly, in opposition to the Romans, who, according to Pliny, said it had only soul enough to take pickle. At all events the hog has thrived under obloquy. The hogs introduced by Captain Cook into New Zealand have overrun the country, and served as substitutes for many missionaries; though how they got into some other of the islands of the Pacific, except as "stowaways," is not altogether certain.

The cat is an exotic in the western countries of Europe, and is not identical with the European wild cat; it is the only feline animal that has been hitherto domesticated, and it is doubtful whether mankind has been benefited much in consequence. Mr. Craufurd thinks that even the plea of its mousing qualities *is questionable, and considers that its fur is of small value, and its flesh of less, except to the Chinese.* In short, if this

estimate of Pussy's services leads to practical measures, we may owe the nocturnal quiet of this metropolis to ethnology and Mr. Craufurd.

In addition to quadrupeds, we have domesticated some nine species of birds, to the advantage of the public diet, chief of which is the common fowl, never mentioned in the Old Testament or the Homeric poems, and which probably came to us through Persia from Hindostan. Chanticleer and his dame were known at Nineveh; they were represented on Syrian monuments; and they are heard of in Greece, a little later than the battle of Marathon, from Theognis. But neither Helen nor Iphigenia ever tasted the wing of a chicken. Whether in the wild or domestic state, they were wholly unknown on the continent and islands of America; and they owe their presence there to Columbus, as in New Zealand to Captain Cook, and in Australia to later navigators. We ourselves declined to eat them in the time of Julius Cæsar, though even then we cherished them for cock-fighting, like the Mahomedans and Malays. The gallinæ we got from Africa, pheasants from Asia Minor, and peacocks somewhat later through Persia from India. The turkey (so miscalled) is the gift of the New World; and the small fowl designated bantam really comes to us from Japan. Of course, Shakspeare's carrier in *Henry the Fourth* is guilty of a slight anachronism when he complains that "the turkeys in his panniers are quite starved."—*From a very interesting review, in the Times.*

#### ORIGIN OF MYTHS.

The popular notion of Myths is, that they are free and unrestricted growths of fancy, and that the study of such baseless, unsubstantial fabrics of the imagination can lead to no precise or scientific results. But wider knowledge must dissipate this idea, by showing that myths are intellectual developments to be traced to definite causes, like other products of the human mind. Thus the myth that on a certain hill there was a battle of giants and monsters, will be probably interpreted by the fact that great fossil bones are really found on the spot. Again, the story of the presence of a race of men with tails in a particular district is apt to indicate the real existence of a tribe of aborigines or outcasts, like the Miautsze of China or the Cagots of France. There are two "philosophic myths," invented again and again in the infancy of science, to account for strictly physical phenomena. The Polynesian myth of Mafine, the subterranean god who causes the earthquake by shifting from shoulder to shoulder

the earth which he carries, and many other similar myths, come under the common heading of myths of an earth-bearer, found in various regions, to account for the occurrence of earthquakes. The myth of the Guaranis of Brazil, that a jaguar and a huge dog pursue the sun and moon and devour them, which causes eclipses, is an instance from the wide-spread group of eclipse-myths of a similar kind. On this and other evidence writers argue for the possibility of discovery in the phenomena of civilization, as in vegetable and animal structure, the presence of distinct laws, and attributed the now backward state of the science of culture to the non-adoption of the systematic methods of classification familiar to the naturalist.—*Mr. E. B. Taylor, Proc. British Association.*

#### AN OLD NATURALIST.

Alexander Neckam, one of our mediæval writers upon Natural History, was a native of St. Albans, born on the same night as Richard Cœur de Lion, and suckled at the same breast. He became a distinguished Professor at the University of Paris, and was afterwards elected Abbot of Cirencester. His treatise, *De Naturis Rerum*, is chiefly interesting at the present time on account of the number of curious anecdotes illustrative of natural history with which it abounds. Many of them are of course fabulous; but they enable us to appreciate the peculiar characteristics of the time, and they especially teach us "how great was the love of animals in the middle ages, how ready people of all classes were to observe and note the peculiarities of animated nature, and especially how fond they were of tamed and domestic animals. The mediæval castles and great mansions were like so many menageries of rare beasts and birds of all kinds." Another characteristic of Neckam, which he shares in common with his contemporaries, is his passion for discovering a moral or a mystical application in every scientific fact. For example, God placed spots on the moon that, as the celestial body nearest the earth, it might be a sign to man that he also retained spots in his nature contracted from the "prevarication in our first parents." This love for symbolism causes his philological observations to be ingenious rather than true. Cadaver, a carcase, consists, he tells us, of three syllables representing three distinct words,—*ca* represents *caro*, *da* *data*, and *ver* *vermi-bus*; thus the elements which make up the Latin word for carcase imply, when decomposed and reconstructed, "flesh given to the worms"—a really astonishing coincidence. Still more wonderful is his discovery of the whole doctrine of the

Trinity in the first word of the book of Genesis in Hebrew. Neckam was a precursor of Bacon. Bacon speaks of him respectfully, but declines to admit him as an authority.—*Times*.

#### QUALIFICATIONS FOR A NATURAL HISTORIAN.

Let no one think that Natural History is a pursuit fitted only for effeminate or pedantic men. We should say rather that the qualifications required for a perfect naturalist are as many and as lofty as were required by old chivalrous writers for the perfect knight-errant of the middle ages; for, to sketch an ideal—of which, we are happy to say, our race now affords many a fair realization—our perfect naturalist should be strong in body; able to haul a dredge, climb a rock, turn a boulder, walk all day, uncertain where he shall eat or rest; ready to face sun and rain, wind and frost, and to eat or drink thankfully anything, however coarse or meagre; he should know how to swim for his life, to pull an oar, sail a boat, and ride the first horse which comes to hand; and finally, he should be a thoroughly good shot, and a skilful fisherman; and, if he go far abroad, be able on occasion to fight for his life.—*Kingsley's Glaucus*.

#### MUSCULAR POWER.

The muscular power of a man is usually made to operate either by his legs or his arms, rarely by both together. It has been estimated that by the action of his legs upon a tread-wheel he can raise his own weight, about 150 lbs., 10,000 feet per day, or 3,125 per minute, supposing the work to be continued eight hours a day. A man who ascends a hill 10,000 feet high does a good day's work, a result which corroborates the preceding. In respect to the dynamical effect of a man working with his arms, we have the authority of Smeaton that a good labourer can thus raise 370 lbs. 10 feet high per minute, being somewhat greater with his arms than with his legs.

## MAMMALIA.

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### THE LOWEST OF THE HUMAN RACE.

"THE Andamaners," says Professor Owen, "are, perhaps, the most primitive or lowest in the scale of civilization of the human race." They have no tradition, and apparently no notion of their own origin; they manifest no conception of a Supreme Being or of a future existence; they are naked and not ashamed; and any rudiment of a cincture relates solely to the convenience of suspension of weapons or other portable objects. They are implacably hostile to strangers, and they have made no advance in the few centuries during which these seas have been traversed by ships of the highest races. In short, they are nearer the orang-outang or the chimpanzee than any other specimens of the human race, and stand at the lowest rung of the ladder in the ethnological scale of comparison.

### SHAVING THE BEARD.

"It cannot but be a custom," says Dr. Elliotson, "most insulting to nature to shave off the beard, which, if kept in proper trim, as birds and beasts instinctively keep their plumage and hair in good order, completes the perfection of man's face, and the external distinction of the sexes; and, whatever ladies pretend to the contrary, renders him far more attractive to women—at any rate, when custom has had time to lessen their seeming repugnance; for their preference to men with good whiskers is certain. Shaving was forbidden by Moses, and therefore, according to Jews and Christians, by God. It was a severe punishment among the Indians, and an irreparable insult among the Germans. The Osmanli swears by his beard, and spends half his day upon it. Shaving prevails in Europe because the kings of France set the example to their courtiers, who were followed by the nation which

formerly gave the *ton* to neighbouring nations, and therefore was at length followed by all in this troublesome and unmanly fashion.—*Human Physiology*, 5th edition.

#### LOVE OF CHANGE.

What a strange hankering some people have after unorthodoxy. Canon Kingsley gives up at last the notion that the cave-dwelling, kitchen-midden-making man was ancestor of us Europeans; but he still holds that the human race has existed through boundless ages, the length of time being filled up by pre-Adamite sultans of high culture, who drove out the said kitchen-midden-makers to the world's end. But what is the need for such an immense space of time if man was civilized from the beginning? The Darwinians want limitless ages; but those who think Archbishop Whately (and the book of Genesis) right might surely be content with 6,000 years.

#### PHYSIOGNOMY OF THE HAND.

*Elemental* hands are such as betray a certain approximation at once to the hand of the little child and to the paw of the most man-like brutes. They are distinguished by the metacarpal part being both long and broad; the palm large, thick, and hard; the fingers short, thick, and squared at their ends; the thumb stumpy, and often turned back; the nails short, strong, and hard. Such hands symbolize a rough, unfinished mind, a mind lowly developed, obtuse intelligence, slow resolution, dulness of feelings. They are found especially among the common people; and combined, as they often are, with large though coarsely-modelled heads, they represent the material strength of a nation, its work, its man-power. These make the show of hands at the hustings; these are the mighty unwashed. But they are found in higher classes too; and there, though washed and gloved, and never seamed or hardened by appropriate toil, the elemental hands betray the same want of mental refinement, the same rough, unfinished nature.

The *Motor* hand, which is especially the male hand, is characterized partly by its great size, partly by its strength of bone and muscle, and its strong projecting joints and sinews. The palm is nearly square, the fingers longer than in the elemental hand, but very strong, large jointed, and broad tipped; the thumb especially strong, and with a full ball; the nails suitably large, and of elongated quadrangular shape; the skin of the back firm and strong, and usually but slightly hairy. Such



a hand symbolizes strength of will, and aptness for strong, sustained efforts of mind. They who have such hands are likely to be less finely sensitive and less intelligent than resolute and strong-willed. The old Roman character might be the type of the motor-handed men; and the hands of Roman senators and emperors in works of art have almost always the genuine motor characters. The thumb, which is in all hands the most significant, because the most essentially human member, is especially so in these; its large size always symbolizing an energetic nature.

The *Sensitive* is the proper feminine hand. It is never very large, and is often rather below the module in its length, and all its textures are delicate. In the palm, length predominates a little over breadth; the fingers are not proportionately longer than in the motor hand, but the thumb is decidedly smaller, and much more delicate. The fingers are divided in soft and oval forms, with full rounded tips; the nails, nearly equilateral, are remarkably fine and elastic.

Men with hands thus formed are generally distinguished by feeling, by fancy, and by wit, more than by intellectual acuteness and strength of will. They commonly are of sensitive, sometimes of psychical constitution, and generally of sanguine temperament. But good specimens of sensitive hands are seldom found except in the higher and well-educated classes (the forms that are near the type will be mentioned presently); in the lower class of northern countries they are seen only in women.

The *Psychical* hand, the most beautiful and the rarest of all the forms, is that which is most unlike the elemental and the childish hand. It is of moderate size in proportion to the whole stature. It should measure in its length just one module; the palm is a little longer than broad, never much furrowed or folded, but marked with single large lines. The fingers are fine, slender, and rather elongated; their joints are never prominent; their tips are rather long, taper, and delicately rounded; and they have fine nails of similar shape. The thumb is slender, well-formed, and only moderately long. The skin of the whole hand is delicate, and even in a man, has but very little hair. In their perfection, psychical hands can be seen in only the bloom and strength of life. In childhood and in youth the form is not attained; in old age, it is spoiled by the comparative increase of the bones and joints, and by the wrinkling of the skin. Such rare hands are found with none but rare minds.

*They indicate*, Carus says, a peculiar purity and interior *grandeur of feeling* combined with simple clearness in know-

ledge and in will. And D'Arpentigny, speaking, as usual, of the hands as if they were the whole mind, says: "Such hands add to the works of the thinker, as the artist does to the work of the artizan—beauty, ideality; they gild them with a sunbeam, they raise them on a pedestal; they open to them the portals of men's hearts. The soul, forgotten and left behind by philosophic hands, is the guide of these; truth in love and sublimity is their end, expansion their means." But, it must be repeated, good examples of psychical hands are rare, unless where, through many generations, the mind has been highly educated. When they occur among the crowd of men, they often mark those who fail, because an inner vocation to some higher and unattainable sphere of action unfits them for the rough handicrafts of the lower classes.—*From a Paper in the Quarterly Review.*

#### THE ROAR OF THE LION.

This is attributed to the great comparative size of the larynx, or that part of the lion's throat which forms the upper part of the wind-pipe, the principal organ of voice in all animals. The absolute size of the larynx of the whale and the elephant is the largest; but relatively, the larynx of the lion has a still greater circumference.

#### STRENGTH OF THE LION.

This lies chiefly in the fore legs, the muscles of which are unusually firm, as are also those of the thigh of a fighting-cock (*Home*). The lion's fore-leg contains a greater quantity of phosphate of lime than is found in ordinary bones, so that it may resist the powerful contraction of the muscles. The texture of this bone is so compact that the substance will strike fire with steel.

#### STORY OF ANDROCLES AND THE LION.

Androcles was a slave who fled from the cruelty of his master in Africa, and having taken refuge in a cave, was alarmed at the entrance of a monstrous lion, expecting to be instantly torn in pieces. The animal approached him gently, and lifted up one of his feet, from which Androcles extracted a thorn, and pressed out a quantity of putrid matter; on which the lion retired, and brought him for sustenance the beasts which he had taken. In this manner Androcles lived with the lion for three years; afterwards fled, was taken by the soldier—

conveyed to his master, and sent to Rome, where he was doomed to fight with wild beasts. Amongst others, his old Numidian acquaintance entered the arena, recognized his benefactor, and advanced towards him with every sign of blandishment, on which Androcles related the circumstance, which procured him his life; and he afterwards led the lion up and down the city, when the people exclaimed, "This lion was the man's entertainer; this man was the lion's physician."

The stories of lions licking the hands of men without injuring them are, however, to be discredited; because the lion's tongue has sharp and horny points, inclining backwards, so as not to be able to lick the hand without tearing away the skin and flesh.

#### "THROWN TO THE LIONS."

The punishment of being thrown to lions was a very common one among the Romans of the first century; and very numerous tales are extant in which the fierce animal became meek and lamb-like before the holy virgin daughters of the Church. This, indeed, is the origin of the superstition so beautifully expressed in Lord Byron's *Siege of Corinth*:—

" 'Tis said that a lion will turn and flee  
From a maid in the pride of her purity."

Bishop Burnet's sermon at the Rolls Chapel, on the text, "Save me from the lion's mouth; thou hast heard me from the horns of the unicorns," occasioned his removal and disgrace at Court, the king considering the Chapel of the Rolls as one of his own chapels.

Lord Burghley tells us, in his *Diary*, that in 1586 the keeper of the lions in the Tower received 12d. per diem, and 6d. for the meat of those lions. A century ago the lions in the Tower were named after the reigning kings; and it was long a vulgar belief that "when the king dies, the lion of that name dies after him." Addison, in the *Freeholder*, alludes to this popular error in his own inimitable way:—"Our first visit was to the lions. My friend [the Tory Fox Hunter] who had a great deal of talk with the keeper, enquired very much after their health, and whether none of them had fallen sick upon the taking of Perth, and the flight of the Pretender; and hearing they were never better in their lives, I found he was extremely startled; for he had heard, from his cradle, that the lions in the Tower were the best judges of the title of our British kings, and *always sympathized with our sovereigns.*"

## THE GORILLA.

Dr. Walker, of Fernando Po, in 1867, shipped for England a fine healthy young male Gorilla. It was captured by one of the trading natives, who, whilst taking a walk unarmed, except with a spear, suddenly came on a family of gorillas—father, mother, and young one. The mother, contrary to what might have been expected, abandoned her “baby,” and ran off; the father showed fight, rushing at the native open-mouthed, and receiving a stab in the side from a spear, which caused him to retreat a little; when the man, not waiting to receive a second attack, snatched up the young one, and made for his home as fast as possible, and the next day brought the little fellow to Dr. Walker, made fast with a forked stick about his neck, as if he was a most ferocious animal. “I soon,” says the Doctor, “made him more comfortable, by placing a belt round him, to which I attached a small cord; and though somewhat snappish for a day or two, and very shy, he soon became quite familiar and tame; and now his greatest delight is to be in my arms, where he would stop altogether if I would let him, and had nothing to do but to nurse him. He is, I should think, between one and two years old, hearty, vigorous, and healthy, with a tremendous appetite, and contrives to get through several pounds of berries a day, besides nearly a pint of goat’s milk, with which I mix up two raw eggs, to prevent diarrhoea, to which these animals are very subject, and which has occasioned the death of four others which I have had at different times; but I think this one stands a better chance of living than any of the previous ones—at any rate, there seems little fear of his dying of starvation.

“I have always been puzzled by M. Du Chaillu’s account of the unconquerable savageness of young gorillas, which is so diametrically opposed to my own experience of them. I certainly never saw any of those in his possession whose untameableness he mentions, but he saw one perfectly tame at my factory in, I think, 1860; and of the five I have had, only one, and that about four years old, was at all savage; the others soon became tame, familiar, and playful, and the present subject is no exception to the rule, having made great progress in a very short time, and being certainly quite as devoid of spitefulness as a chimpanzee of the same age, and only so short a time from the ‘bush’ would be. The grief of the little fellow when first caught was quite touching to witness; he could scarcely bear to be looked at, and, if at all annoyed by the presence of many people round him, would lie on the ground

with his face buried in his hands, and sway his head from side to side, as if in an agony of sorrow at losing his parents; and even now, when left alone for any length of time, he has relapses of the same kind, and appears to be in great tribulation."

#### THE RHESUS AND PIG-TAILED MONKEYS.

M. Geoffroy Saint Hilaire and M. Frederick Cuvier relate that Rhesus monkeys were originally from India. It is by them that a great part of the forests on the banks of the Ganges are inhabited. Encouraged by the invincible repugnance of the Indian to kill animals, they advance even into the towns in search of more agreeable food than what they find in the forests. The disposition of these monkeys is wholly intractable; while young they are capable of a certain degree of domestication, but they very early become mischievous, and age renders them ferocious: as they have great penetration, their mischief is very dangerous. The pig-tailed monkeys show considerable gentleness and docility while young, but also become mischievous as they grow old. They are natives of Sumatra, where they are called *barron*, and where they are employed to mount the trees, especially palm-trees, to gather the fruit. The females are more tractable than the males. One in the Royal Ménagerie at Paris would mount the trees to which she was bound with great agility, and pull off the leaves, but without devouring them. She would very dexterously untie the cord which bound her, and run to visit the houses in the neighbourhood, but always without attempting any harm.

#### THE KANGAROO.

It seems that neither of our Australian naturalists has placed on record a very striking fact in the moral physiology of the Kangaroo. When hard pressed in hunting, this animal, as a last resource, makes for water, and waits till its pursuers come up. It then turns and closes with its nearest enemy—dog or man, as the case may be—and very deliberately sets about drowning him. This strange proceeding is corroborated by a story in the *Grenville Advocate*, published at the gold-field town of Smythesdale, twelve miles from Ballarat. It is there related that at the mail-tent, between Wickliffe and Dunkeld, on the Hamilton road to Portland, in 1866, a kangaroo dog, being in pursuit of an old man kangaroo, stuck him up. A lad named James Withington, fearing that the dog would get the worse for attacking the kangaroo, went to the dog's assistance;

but no sooner did the kangaroo see the lad, than the boomer seized him by the body, and carried him forty yards towards a dam, evidently with the intention of drowning him therein. The lad stated that he had a knife in his pocket, when he was carried away; but the kangaroo held him so firmly in his grasp, that he was prevented from cutting the animal's throat. At last the faithful kangaroo-dog, who had first attacked the boomer, came to the rescue, and saved his master from a premature death from drowning.

#### THE GIRAFFE AND THE KNIGHT'S MOVE AT CHESS.

The awkward movement of the Giraffe is attributed to the disproportion of the hinder parts of its body, and the immense length of the neck, which, instead of being arched, forms an angle with the shoulders. In walking, it moves the fore and hind foot of the same side together, like an ambling horse, from which circumstance it has a very remarkable motion; whence the move of the knight at chess is derived.—*Blumenbach.*

#### ERRORS RESPECTING BATS.

The strange combination of character of beast and bird, which bats were believed to possess, gave to Virgil the idea of the *Herpies*. Aristotle speaks of bats having feet as birds, but wanting them as quadrupeds; of their possessing neither the tail of quadrupeds nor of birds; of their being, in short, birds with wings of skin. He is followed, but with increasing error, by *Ælian* and by *Pliny*; the latter of whom says that the bat is the only bird which brings forth young, and suckles them. Even up to a late period bats were considered as forming a link between quadrupeds and birds. The common language of our own ancestors, however, indicates a much nearer approach to the truth in the notions entertained by the people than can be found in the lucubrations of the learned. The words *reremouse* and *flittermouse*, the old English names for the bat,—the former derived from the Anglo-Saxon "*aræran*," to raise, or rear up, and mus; the latter from the Belgic, signifying "flying or flittering mouse,"—show that in their minds these animals were always associated with the idea of quadrupeds. The first of these terms is still used in English heraldry; though it may have ceased to belong to the language of the country. The word *flittermouse*, sometimes corrupted into *flintymouse*, is the common term for the bat in some parts of the kingdom, particularly in that part of the county of Kent in which the language

as well as the aspect and names of the inhabitants, retain more of the Saxon character than will be found, perhaps, in any other part of England.—*Thomas Bell, F.R.S.*

#### THE CAPE ANT-EATER.

A specimen of this singular animal, brought from the Cape of Good Hope, where it is called by the Dutch colonists *aard-vark*, or “earth-pig,” has been thus cleverly described by Mr. Frank Buckland, in *Land and Water*.—

“As it lay among the straw, with its head nestled in the corner, it was in general appearance not unlike a pig. Its total length is four feet; of this the head is eleven inches and the tail one foot six inches, and much the shape of the pigtails formerly worn by sailors. Its body is thick and corpulent, the hide tough and badger-like, and covered with a few short, stiff hairs of a brownish colour tinged with red. The ears are long, measuring no less than eight inches in length and four inches in width; they are of a milk-white colour, and the blue veins can be seen in them; they are like the ears of a lop-eared rabbit fixed upright. The head is long, and reminds one of a kangaroo; the jaws are prolonged, so as somewhat to resemble one of the bottles in which light wines are served at table. The nose is not unlike that of a pig: it is directed upwards and forward, and the animal continually sniffs it about like a pig waiting to be fed. The entrances to the nostrils are protected with a fringe of stiff hair; the mouth is exceedingly small, about two inches in length, and looks like a simple slit cut in the head with a knife; it is capable of very little dilatation: the tongue is flat and slender, but not round, and it does not present the long and whiplike appearance we find in the South American ant-eater. The fore-legs are short and amazingly powerful. Each foot is armed with four claws; these are powerful weapons, as hard as iron. Each claw has a trenchant, or cutting edge; this edge is directed outwards on three of the claws and inwards on one of them; so that when the beast strikes he wields, as it were, a double-edged sword. There are five claws on each hinder leg; these are somewhat spade-shaped. Nature has strangely thought fit to solder up, as it were, the mouths of both the *aard-vark* of Africa, and the ant-eater of South America. In both creatures the mouth is diminished to a minimum. The latter beast has no teeth at all; the jaws are like the beak of a bird from which the horny bill substance has been removed. *The aard-vark, on the contrary, has teeth: five large teeth are found on each side both in the upper and lower jaws, and two*

or three smaller ones in front of them. The structure of these teeth is peculiar. In section they are exactly like the section of a cane—*i. e.*, their substance is composed entirely of a number of small tubes, parallel to each other, soldered together so as to make the whole tooth mass. This is a form of tooth found in no other animal." This Cape ant-eater was fed upon minced meat, of which it ate three pounds weight a day.

### THE PORCUPINE.

The Crested Porcupine is found in Southern Europe and Northern Africa. In South Africa it is replaced by a nearly allied species—the South African porcupine, and in India by the Indian porcupine. The flesh of the porcupine is considered very delicate food, and is often eaten at dinners in Rome, the animal being not uncommon on the Campagna. The story of the porcupine projecting its quills as a means of defence has probably arisen from the fact, that if strongly excited when the quills are loose and ready for moulting, the violent jerks with which it manifests its anger have the effect of dislodging the most loose among them, and they are then mechanically thrown to some little distance from the animal.

### PRIVATE LIFE OF THE HEDGEHOG.


There are several noteworthy points in the economy of this nocturnal animal. Its food consists principally of insects, worms, slugs, and snails. That it will eat vegetables is shown by White, of Selborne, who relates how it eats the root of the plantain, by boring beneath it, leaving the tuft of leaves untouched. Dr. Buckland proved that, in captivity at least, the hedgehog will devour snakes, and frogs, toads, and other reptiles; and mice have been recorded as its prey, when in a state of nature. From its fondness for insects it is often placed in London kitchens, to keep down the swarms of cockroaches with which they are infested; and there are generally hedgehogs on sale in Covent Garden market for this purpose. It is hardly worth while to re-quote the idle story that this persecuted animal sucks cows; but, according to Sir William Jardine, it is very fond of eggs, and is consequently mischievous in the game-preserve and hen-house. The hedgehog hibernates regularly, and early in the summer brings forth from two to four young ones at a birth, which, at the time of their production, are blind, and have the spines white, soft, and flexible. The nest wherein they are cradled is said to be very artificially constructed, the



roof being rain-proof. The flesh of the hedgehog, when it has been well fed, is sweet and well flavoured, and is eaten on the Continent in many places. In Britain, few besides gipsies partake of it. The prickly skin appears to have been used by the Romans for hackling hemp. The hedgehog sticks its prickles into fruits, that it may bring them to its holes—a fact which has been asserted by the ancients and denied by the moderns; but of its truth Blumenbach observes, “I have been assured by three credible witnesses.”

M. Lenz has proved that the most violent poisons have no effect upon the hedgehog—a fact which renders it of peculiar value in forests, where it appears to destroy a great number of noxious reptiles. M. Lenz had in his house a female hedgehog, which he kept in a large box, and which soon became very mild and familiar. He put into the box some adders, which it attacked with avidity, seizing them indifferently by the head, the body, or the tail, and did not appear alarmed or embarrassed when they coiled themselves around its body. On one occasion, M. Lenz witnessed a fight between the hedgehog and a viper. When the hedgehog came near and smelled the snake—for with these animals the sense of sight is very obtuse—she seized it by the head, and held it fast between her teeth, but without appearing to do it much harm; for, having disengaged its head, it assumed a furious and menacing attitude, and hissing vehemently, inflicted several bites on the hedgehog. At last, when the reptile was fatigued, she again seized it by the head, which she ground between her teeth, compressing the fangs and glands of poison, and then devouring every part of the body. M. Lenz says that battles of this sort often occurred in the presence of many persons; and sometimes the hedgehog has received eight or ten wounds on the ears, the snout, and even on the tongue, without appearing to experience any of the ordinary symptoms produced by the venom of the viper. Neither herself nor the young she was then suckling seemed to suffer from it. This observation agrees with that of Pallas, who assures us that the hedgehog can eat about a hundred cantharides without experiencing any of the effects which the insect, taken inwardly, produces on men, dogs, and cats. A German physician, who made the hedgehog a particular object of study, gave it strong doses of prussic acid, of arsenic, of opium, and of corrosive sublimate, none of which did it any harm.

#### THE SMALLEST MAMMIFER.

 *The minute shrew*, says Blumenbach, is the smallest mammal yet known: it weighs but half a dram.

## CUNNING OF THE FOX.

The Fox hides himself in burrows in the day, and prowls about in a clouded night, that he may avoid the full blaze of daylight, which, becoming painful to his eyes, compels him to close their pupils, so as to render their vision very imperfect. Much of the cunning suspiciousness of manner for which the fox is notorious arises from this circumstance; his attitudes and motions partake of the uncertainty of his sight, and he appears to be most cunning when he is really most short-sighted.

## ANTIQUITY OF THE ASS AND HORSE.

The Horse is not depicted on the ancient Egyptian monuments, but the Ass is represented on the very oldest monuments of Egypt. Its form occurs frequently in the tombs of the old empire, at Gizeh, Sakkarah, and Abouzir. There is a highly curious bas-relief on the tomb of Ti (fifth dynasty), on which we see a drove of asses, a plaster-cast of this having been sent over by M. Mariette to the Universal Exhibition of 1867. From the beginning of the fourth dynasty the ass was an animal as frequent in Egypt as it is now. In the inscription of the tomb of Shafra Ankh at Gizeh, published by M. Lepsius, a herd of 760 asses is mentioned as having been reared on the estates of the deceased, who was a high functionary at the court of the founder of the second pyramid of Gizeh (fourth dynasty). In other still unpublished tombs, discovered by M. Mariette, M. Lenormand has remarked inscriptions in which landed proprietors boast of possessing thousands of asses.

## SAGACITY OF THE ARAB HORSE.

The Arab horse has an apparent sagacity seldom seen in other breeds. This is attributed to the kindness with which he is treated from a foal. The mare and the foal inhabit the same tent with the Bedouin and his children; and the animal acquires that friendship and love for man which occasional ill-treatment will not cause him to forget. Bishop Heber tells us that his Arab horse had almost as much attachment and coaxing ways as a dog. This seems the general character of the Arab horse. It is not the fiery, daring animal generally supposed, but with more rationality about him, and more confidence in him than the majority of English horses.

## TEACHABLENESS OF THE ELEPHANT.

It is probable that the full value of the Elephant, as an *intelligent* servant of man, has never been developed, owing to the neglect of all rational and persevering attempts to breed elephants in captivity. An absurd prejudice has too long been suffered to prevail as to its impossibility, but this has been distinctly disproved, and is now, we believe, exploded. In India the elephant has been employed in ploughing.

The battering-train going to the siege of Seringapatam had to cross the sandy bed of a river, that resembled other rivers of the peninsula, which have, during the dry season, but a small stream of water running through them, though their beds are mostly of considerable breadth, very heavy for draught, and abounding in quicksands. It happened that an artilleryman, who was seated on the limber of one of the guns, by some accident fell off, in such a situation that, in a second or two, the hind wheel must have gone over him. The elephant which was stationed behind the gun, perceiving the predicament in which the man was, instantly, without any warning from its keeper, lifted up the wheel with its trunk, and kept it suspended till the carriage had passed clear of him.—*Military Adventures.*

## THE HOWLING DOG.

In Kelly's *Indo-European Tradition and Folk-lore*, we read:—In the office assigned to the Dog of the Aryans, as a messenger from the world of the dead, we see the origin of that very widespread superstition which recognizes a death-omen in the howling of a dog. An intelligent Londoner tells me he has often seen the omen given, and verified its fulfilment. The dog's mode of proceeding on such occasions, he says, is this:—"The animal tries to get under the doomed person's window; but if the house stands within an enclosure, and it cannot get in, it runs round the premises very uneasily, or paces up and down like a sentry. If the dog succeeds in making an entry, it stops under the window, howls horribly, finishes with three tremendous barks, and hurries away." The same superstition prevails in France and in Germany. In the latter country, a dog howling before a house portends either a death or a fire. If it howls along the highway, that is held in Westphalia to be a sure token that a funeral will soon pass that way. In the German, as in the Aryan mythology, the dog is an embodiment of the wind, and also an attendant on the dead. It appears in both characters in Odin's wild hunt. Dogs see

ghosts, and when Hel, the goddess of death, goes about, invisible to human eyes, she is seen by the dogs.

### BARK OF DOGS.

The Australian dog never barks. Indeed, it is remarked by Mr. Gardiner, in his *Music of Nature*, that "dogs in a state of nature never bark; they simply whine, howl, and growl: this explosive noise is only found among those which are domesticated." Sonnini speaks of the shepherds' dogs in the wilds of Egypt as not having this faculty, and Columbus found the dogs which he had previously carried to America, to have lost their propensity to barking. The barking of a dog is an acquired faculty—an effort to speak, which is derived from his associating with man.—*Bennett*.

### THE DOG.

The Dog and the Elephant approach nearer than any other quadrupeds to the perfection of man. The dog is the only animal that dreams; and he and the elephant the only animals that understand looks. The elephant is the only animal that, besides man, feels *ennui*; the dog, the only quadruped that has been brought to speak. Leibnitz bears witness to a hound in Saxony that could speak distinctly thirty words.

The dog is attached to man, while almost every other quadruped fears man as the most formidable enemy. This particular species of animal feels a natural desire to be useful to man, and, from spontaneous impulse, attaches itself to him. Were it not because we train the dog to our use, and have made choice of him in preference to other animals, we should see in various countries an equal familiarity with various other quadrupeds; but everywhere the dog only takes delight in associating with us, and is even jealous that our attention should be bestowed on him alone; it is he who knows us personally, watches for us, and warns us of danger.

Every species has become our property; each individual is altogether devoted to his master, assumes his manners, knows and defends his goods, and remains attached to him until death; and this proceeds neither from want nor restraint, but solely from true gratitude and friendship. The swiftness, the strength, and the scent of the dog have created for man a powerful ally against other animals, and were, perhaps, necessary to society. He is the only animal which has followed man through every region of the earth.

In the east, however, the dog is held in abhorrence as the common scavenger of the streets. "Him that dieth in the city

the dogs shall eat," was said of Jeroboam and his family (1 Kings, xiv. 11); of Baasha (1 Kings, xiv. 4), a people about to be punished for their offences by famine and pestilence. A ravenous desire for food is called a canine appetite; and of a foul and gluttonous feeder it is said, that hungry dogs will eat dirty pudding. By the Israelites the dog was accounted so abominable, that in the Levitical law the price of a dog was forbidden to be offered in sacrifice. He has also been ever the miserable victim of most cruel experiments by the anatomist and the philosopher; and when a tax was laid on his head, a general massacre of the species took place. By the Egyptians, however, the dog was an object of adoration, as the representative of one of the celestial signs; and by the Indians, as one of the sacred forms of their deities.

"The Egyptians worshipped dogs, and for  
Their faith made internecine war."—*Hudibras*.

It is an error to imagine that a mad dog avoids the water; for he will both drink it and swim in it as usual, and without presenting any of that horror of it which characterizes Hydrophobia in man.

*The Canicular or Dog-days* are so called, not because dogs are at that season apt to run mad, but from the heliacal rising of Sirius, or the Dog-star, as typical of the season of greatest heat, or wane of the summer.

In moonlight nights dogs, as the emblems of vigilance, are said to be more than usually watchful, and to "bay the moon;" and they are supposed to have a sense of the odour of mortal dissolution, and to howl before the death of one of the family.

Mr. Jesse notes, in his *Gleanings*:—"Every one has observed that dogs, before they lie down, turn themselves round and round several times. Those who have had an opportunity of witnessing the actions of animals in a wild state, know that they seek long grass for their beds, which they beat down, and render more commodious by turning round in it several times. It would appear, therefore, that the habit of our domestic dogs in this respect is derived from the nature of the same species in the wild state. This is a curious fact, and serves to prove how much the instinctive habits of wild animals are retained by their domesticated progeny.

#### THE DOGS OF ST. BERNARD.

These dogs are becoming more and more *à la mode*; everywhere there is a demand for them. It will be remembered that a *Swiss dog-fancier*, M. Schumacher (brother of Major Schuma-

cher), obtained at Paris the first grand prize. At Cannstadt, and at the time of the Würtemberg Exhibition, the king familiarly entertained himself with the Swiss competitors, and examined with attention the dogs furnished at the collar with the traditional supply of cordials, patting and at the same time suffering himself to be patted by the principal animals. The Swiss expositors obtained on that occasion two grand prizes and diplomas. This renown has procured the St. Bernard breed unparalleled favour. People are buying in all parts of Europe, even to the borders of the Atlantic (as we ourselves have lately seen at Lisbon), the dogs of St. Bernard. Berne appears to be, according to those well up in dog-fancying, the only place which has preserved the purity of the breed. Some people will have it that those of the Valais, nay, even those of St. Bernard itself, are nothing more than cross-breeds. However this may be, we have here a novel kind of business of which nobody ever dreamt a few years ago.—*Swiss Times*, October, 1871.

#### ELECTRICITY OF THE CAT.

The Cat, especially the black kind, is highly charged with electricity, which is visible in the dark, when the cat is irritated, and may be produced as follows:—

Place your left hand upon the throat of the cat, and with the middle finger and the thumb press slightly the bones of the animal's shoulders; then, if the right hand be gently passed along the back, perceptible shocks of electricity will be felt in the left hand. Shocks may also be obtained by touching the tips of the ears after rubbing the back. The same may also be obtained from the foot. Placing the cat on your knees, apply your right hand to the back; the left fore-paw resting on the palm of your left hand, apply the thumb to the upper side of the paw, so as to extend the claws, and by this means bring your fore-finger into contact with one of the bones of the leg, where it joins the paw; when, from the knob, or end of this bone, the finger slightly pressing on it, you may feel distinctly successive shocks, similar to those obtained from the ears.

#### "THE CAT'S PAW."

The well-known tale of the monkey seizing hold of the paw of the cat, to get the roasted chestnuts from the hot embers, gave rise to the proverb, "to make a cat's-paw of one," or to make another subservient to one's own services.

*This phrase is of greater antiquity than many suppose; for we find a story of a cat and a monkey, in A Voyage Round the*

*World*, by Dr. John Francis Gemelli Careri, in 1695. The Doctor was told by D. Antony Machado de Brito, Admiral of the Portuguese fleet in India, that in order to punish a mischievous monkey, he placed upon the fire a cocoa-nut (of which monkeys are very fond), and then hid himself to see how the monkey would take it from the fire without burning his paws. The cunning creature looked about, and seeing a cat by the fireside, held her head in his mouth, and with her paws took off the nut, which he then threw into water to cool, and ate it.

### MELANCHOLY OF ANIMALS

The melancholy of certain animals is very noticeable. Shakspeare, in *Henry IV.*, has the following references:—

*"Falstaff.* 'S blood, I am as melancholy as a gib-cat, or a lugged bear.

*P. Henry.* Or an old lion, or a lover's lute.

*Falstaff.* Yea, or the drone of a Lincolnshire bagpipe.

*P. Henry.* What sayest thou to a hare, or the melancholy of Moreditch."

The "lordly lion," as he is called by Young, often denotes this passion in his confinement. The story of the lion at Versailles, many years since, who, on the death of his favourite dog, became disconsolate and miserable, is well known to the readers of natural history. Bears are, perhaps, the most solitary of all quadrupeds; the brown species frequently choosing for its abode the hollow of a tree, in which it lives during the winter without provisions; or in caves, on beds of grass, leaves, and moss. The attachment of bears to their young is proverbial, although they are unsparingly sacrificed to the avarice and amusement of unfeeling bipeds. Stories of bears in the polar regions seldom fail to excite momentary sympathy in their readers; indeed, they exhibit traits of affection which are not always to be found in nobler animals. Cats are likewise subject to the influence of melancholy; and this fact is attested by a writer in the *Gentleman's Magazine*, who saw a cat attempt *suicide*, by repeatedly throwing itself head foremost from a high shelf on a stone floor; and though it did not accomplish its purpose, yet it was so bruised, as to render its destruction humane.\* Sonnini relates an anecdote

\* The above circumstance will hardly obtain belief, except among persons conversant with the phenomena of natural history. Lord Kaimes relates this anecdote:—A brood of stone-chatters, taken from the nest, were enclosed in a cage; the door was left open to admit the mother, and was then shut upon her. After many attempts, finding it impossible to get free, she first put her young to death, and then dashed out her own brains on the side of the cage. Similar stories of parrots and domesticated birds are very frequent. I recollect an instance of a parrot exhibiting tokens of joy for upwards of an hour, on the return of its mistress, after an absence of some months: the lady was absent on the following day for three or four hours, during which time the poor bird died of what may be termed excessive grief.

of the Angora cat, a native of Egypt, which kept by his side in his solitary moments, and often interrupted him in his meditations by affectionate caresses; and, in his absence, sought and called for him with great inquietude. Hares are, however, the most interesting in their melancholy characteristics. They are so timid as to be fascinated by fear; even a falling leaf disturbs them. They live in solitude and silence, except occasionally assembling by moonlight, to sport together, when their savage enemies are asleep. Their cries, when taken, resemble those of an infant; but this appeal to man, though in the semblance of his own nature, is ineffectual. Cowper domesticated three hares, and his account of them is full of pathos and fine feeling: what genial companions must they have been in his melancholy musings! Thomson says,

“Poor is the triumph o'er the timid hare;”

—though not a sentiment of his epicurism.—*Cameleon Sketches, by the Author of the present volume.*



## BIRD LIFE.

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### ACTIONS OF BIRDS.

DR. FLEMING, the able zoologist, infers that birds possess some notions of power and of cause and effect, from the various actions which they perform. Thus, for example, he says, "We have seen the hooded crow in Zetland, when feeding on shell-fish, able to break some of the tenderer kinds by means of its bill, aided, in some cases, by beating them against a stone; but, as some of the larger shells, such as the buckle and the wilk, cannot be broken by such means, it employs another method, by which, in consequence of applying foreign power, it accomplishes its object. Seizing the shell with its claws, it mounts up into the air, and then loosing its hold, causes the shell to fall among stones (in preference to the sand, the water, or the soil on the ground), that it may be broken, and give easier access to the contained animal. Should the first attempt fail, a second or a third is tried, with this difference, that the crow rises higher in the air, in order to increase the power of the fall and more effectually remove the barrier to the contained morsel. On such occasions, we have seen a stronger bird remain an apparently inattentive spectator of the process of breaking the shell, but coming to the spot with astonishing keenness when the efforts of its neighbour had been successful, in order to share in the spoil. Pennant mentions similar operations performed by crows on mussels."—*Philosophy of Zoology*.

### BIRDS' NESTS.

According to M. Pouchet, the architecture of birds has changed with that of men. In former days, when the swallow's nest was built against Gothic edifices, it made a semi-globular nest with a very small rounded entrance, but in the new streets of Rouen its nests are now found to be of a semi-ovoid instead of semi-globular shape, and the entrance is a long transverse cleft.

## STORKS IN HOLLAND.

One of the peculiarities of Holland is the sort of veneration in which the Stork (called *Coyevaar*) is held by the inhabitants. These birds are not only never injured or disturbed, but a cart-wheel, or some other contrivance, is often placed on the housetop for their use, if not expressly to invite them to settle, at least to prevent their becoming a nuisance; since otherwise the bird, attracted by the warmth of the fire, would necessarily deposit the materials of its nest on the chimney-top itself, so as to stop it up, dirty the house, and perhaps set it on fire, which the owner prevents by a stand or rest, so placed as to allow the smoke to escape from beneath it. Their huge nests may be seen perched on the roofs of farm-houses, and even in the towns on the edge of a gable or near a chimney. It is considered a good omen to a dwelling and its inmates if the stork selects it for its habitation; and to kill one of these birds is looked upon in hardly any other light than a crime. The main army of storks migrate to a southern climate about the middle of August, taking with them the young brood which they have reared. They return in the spring about the month of May. The old ones never fail to seek out their former nests. During a great fire, which, in 1536, destroyed a large part of the town of Delft, the storks were seen bearing away their young ones from their nest through the midst of the flames; and where they were unable to effect this, perishing with them rather than abandon them. Several of the Dutch poets allude to this well-authenticated fact.

Nightingales and singing birds in general, are also protected from molestation in Holland; and bird-nesting and every other injury to the melodists of the wood is severely punished by local laws.—*Murray's Handbook of Northern Germany.*

## BIRDS STANDING LONG ON ONE FOOT ONLY.

Some birds stand for a great length of time on one foot only without much exertion, because of the length of the toes, and the manner in which they are disposed, joined to the disposition of the body with regard to its centre of gravity. Thus, in the *Stork*, "the surface of the femur (or thigh-bone) that articulates or joins with the tibia (or the largest leg bone) has in its middle a depression, which receives a projection of the latter bones. In bending the leg, this process is lifted out of the depression, and removed to its posterior edge. By this motion,

the ligaments are necessarily more stretched than during the extension of the leg in which the process remains in its socket. These ligaments, therefore, preserve the leg extended in the manner of some springs, without receiving any assistance from the muscles."

#### WHEN SWALLOWS COME AND GO.

Mr. Bree, from a table showing the earliest and latest appearances of the British Swallows, from the year 1800 to 1830, observes that the general flight of the Swallow, Marten, and Sand-marten, does not usually appear till about the end of April or beginning of May, and retires about the beginning of October. Of the Swifts the general flight may be stated as arriving about the middle of May, and departing early in August. According to the table found, the order in which these birds make their appearance should be thus arranged:—Sand-marten, House-swallow, House-marten, Swift, &c. The earliest appearance recorded in the table (of individuals or parties of the species, not of the main body) is that of the sand-marten, March 31, 1818, when about a score of them were seen sporting over the marches near Penzance. The earliest appearance noted of the swallow is the 3rd of April, 1803; the latest period, November 20, 1806. Earliest of the marten, April 3, 1803; the latest day on which any of the species have been visible in autumn, November 14, 1813. The earliest period recorded of the swift is the 29th April, in 1820; the latest period of his visibility, September 15, in 1817, when two or three were seen sporting about near the sea-side, in the vicinity of Penzance.

#### SERVICES OF THE RAVEN.

Notwithstanding all the care of the Raven, his nest is invaded wherever it is found. His usefulness is forgotten, his faults are remembered and multiplied by imagination; and whenever he presents himself he is shot at, because from time immemorial ignorance, prejudice, and destructiveness have operated on the mind of man to his detriment. Men will peril their lives to reach his nest, assisted by ropes and poles, alleging merely that he has killed one of their numerous sheep or lambs. Some say they destroy the raven because he is black; others because his croaking is unpleasant and ominous. Unfortunately, truly are *the young ones that are carried home to become the wretched of some ill-brought-up child!* For my part (says Audubon)

I admire the raven, because I see much in him calculated to excite our wonder. It is true that he may sometimes hasten the death of a half-starved sheep, or destroy a weakly lamb; he may eat the eggs of other birds, or occasionally steal from the farmer some of those which he calls his own; young fowls also afford precious morsels to himself and his progeny: but how many sheep, lambs, and fowls are saved through his agency! The more intelligent of our farmers are well aware that the raven destroys numberless insects, grubs, and worms; that he kills mice, moles, and rats wherever he can find them; that he will seize the weasel, the young opossum, and the skunk; that, with the perseverance of a cat, he will watch the burrows of foxes, and pounce on the cubs: our farmers also are fully aware that he apprises them of the wolf's prowlings around their yard, and that he never intrudes on their corn-fields except to benefit them; yes, good reader, the farmer knows all this well, but he also knows his power, and interfere as you may, with tale of pity or of truth, the bird is a raven, and, as La Fontaine has aptly and most truly said, "La loi du plus fort est toujours la meilleure."

#### RAVEN SUPERSTITIONS.

The Raven is one of the chosen birds of superstition, because of its supposed longevity, its frequent mention and agency in holy writ, the obscure knowledge we possess of its powers and motives, and the gravity of its deportment, like an "all-knowing bird," which has acquired for it, from very remote periods, the veneration of mankind. The changes in our manners and ideas, in respect to many things, have certainly deprived them of much of this reverence; yet the almost supernatural information which they obtain of the decease, or the approaching dissolution of an animal, claims still some admiration for them. This supposed faculty of "smelling death" formerly rendered their presence or even their voice ominous to all, as

"The hateful messenger of many things,  
Of death and dolor telling;"

and their unusual harsh croak still, when illness is in the house, with some timid and affectionate persons, brings old fancies to remembrance, savouring of terror and alarm.—*Knapp's Journal of a Naturalist.*

The poets have highly-embellished this superstition. Drayton sings,—

"The greedy raven that doth call for death;"

and quotes Pliny for his authority. Shakspeare—

"The raven himself is hoarse  
That croaks the fatal entrance of Duncan  
Under my battlements."—*Macbeth*.

### EGGS OF THE CUCKOO.

From the researches of Dr. Baldamus respecting the natural history of the Cuckoo, it appears that the cuckoo never constructs a nest, but lays her eggs upon the ground, and conveys each egg in her beak to the nest of some other bird, where it is hatched. The cuckoo, before laying, looks round to select the nests in which her eggs are to be deposited, and she never places more than one egg in one nest. She continues to watch these nests during the progress of incubation, and it is the parent bird, and not the young cuckoo, which removes the other young birds from the nest. The eggs of the cuckoo are small, relatively with the size of the bird, and they have been observed to assimilate in the markings to the eggs of the foster-mother, whence it has been inferred that the cuckoo had the power of determining the markings on its eggs. Dr. Baldamus says that this is not so, but that the eggs of different cuckoos have different markings, and that each selects the kind of nest in which similar eggs are found. The parent cuckoos migrate before the young ones are strong enough to accompany them; but the young ones follow by unerring instinct.

### GIGANTIC BIRDS' EGGS.

In 1854, M. Geoffroy de St. Hilaire exhibited to the French Academy some eggs of the Epyornis, a bird which formerly lived in Madagascar. The larger of these was 12.1 inches long, and 11.1 inches wide. The smaller one was slightly less than this. The Museum d'Histoire Naturelle at Paris also contains two eggs, both of which are larger than the one recently put up for sale, the longer axis of which measures 10 inches, and the shorter 7 inches. In the discussion which followed the reading of M. de St. Hilaire's paper, M. Valenciennes stated it was quite impossible to judge of the size of a bird by the size of its egg, and gave several instances in point. Mr. Strickland, in some "Notices of the Dodo and its Kindred," published in the *Annals of Natural History* for November, 1849, says that in the previous year a Mr. Dunarele, a highly respectable French merchant at Bourbon, saw at Port Leven, Madagascar, an enormous egg, which held "*thirteen wine quart bottles of fluid.*" The natives stated that the egg was found in the jungle, and served that such eggs were very, very rarely met with."

Mr. Strickland appears to doubt this, but there seems no reason to do so. Allowing a pint and a half to each of the so-called "quarts," the egg would hold  $19\frac{1}{2}$  pints. Now, the larger egg exhibited by St. Hilaire held  $17\frac{3}{4}$  pints, as he himself proved. The difference is not so very great. A word or two about the nests of such gigantic birds. Captain Cook found, on an island near the north-east coast of New Holland, a nest "of a most enormous, size. It was built with sticks upon the ground, and was no less than six and twenty feet in circumference, and two feet eight inches high (Kerr's *Collection of Voyages and Travels*, xiii., 318). Captain Flinders found two similar nests on the south coasts of New Holland, in King George's Bay. In his *Voyage*, &c., London, 1818, he says, "they were built upon the ground, from which they rose above two feet, and were of vast circumference and great interior capacity; the branches of trees and other matter of which each nest was composed being enough to fill a cart."

#### WHAT WERE THE HABITS OF THE DODO?

All the records we have of the history of this remarkable extinct bird are to be found in the reduced highly-finished figure by Savery, in his famous painting of "Orpheus Charming the Beasts," now in the collection at the Hague; in the recent discovery of a skull of the bird, in the Museum of Natural History at Copenhagen; and by a comparison of the cast of the head of the bird, in the Ashmolean Museum at Oxford, with those of other recent and extinct species of birds. Added to this, is some satisfactory evidence from a comparison of the bones of the foot, which have recently been very skillfully and judiciously illustrated by the able curator of the Ashmolean Museum. Upon the whole, Professor Owen considers the structure of the foot, and general form of the beak, to lead us to regard the dodo as a modified bird of prey. Unable to fly, it could have had small chance of obtaining food by preying upon members of its own class; and, if it did not exclusively subsist on dead and decaying organized matter, it most probably restricted its attacks to reptiles, certain fishes, crustacea, &c. Possibly, a search for the bones in the superficial deposits, the beds of rivers, and the caves in the island of Mauritius and Rodrigues, may enable naturalists further to illustrate the history of this curious bird.

#### THE HERON AND HERONRIES.

*Those fine old birds, the Herons, are the last of their tribe*

now left to breed in the British islands. They are still reckoned as game, but protection in that character has long ceased to be afforded them. There is a fine heronry at Didlington Park, in Norfolk, belonging to Mr. Tyssen Amhurst. Mr. S. Carter, an artist who sketched this heronry for the *Illustrated London News*, upon emerging from the deep shade, through the thick matted foliage of the Scotch fir tops, was astonished by the novel scene which there presented itself. The old herons, alarmed at his intrusion, sailed to and fro anxiously overhead, while the young birds, which had been making a hissing and chattering noise, not unlike that of magpies, suddenly collapsed into silence, and peered cautiously from their nests. These are built of sticks, and lined comfortably with moss. Many of the nests had been forsaken by the herons and were already in the possession of other lodgers. These were ringdoves, jackdaws, starlings, and sparrows, and in one nest was a family of wood-owls. Here were also the spotted and green woodpecker, the wryneck, or cuckoo's mate, and a merry squirrel, which had evidently a predilection for eggs, but was kept under the surveillance of a jackdaw. The jackdaw, though himself noted for his larcenous propensity, is a great protector of law and order where his own interests are at stake. But a gang of black carrion crows and vagrant rooks, the outcasts of a neighbouring rookery, are still more to be dreaded. They wait and watch from the rigid branches of a withered tree, alike prepared to avoid any approaching danger, or to pounce upon a nest the instant an incautious parent leaves it unprotected. As the robber then bears away in his beak the egg or the young heron, a scene of the greatest tumult ensues. The maternal parent flounders vainly and frantically in pursuit of him, crying "Frank! Frank! Frank!" but she is easily avoided by her more nimble enemy. He, indeed, is not left alone to enjoy his ill-gotten booty.

Until lately, on this estate hawking was kept up, and in the neighbourhood well-trained falcons are still in the possession of followers of the ancient sport. The herons formerly occupied a grove of oaks and ash trees on the same estate.

Bewick mentions a remarkable circumstance with respect to these birds, which occurred at Dallam Tower, in Westmoreland. "There were," he says, "two groves adjoining the park, one of which had for many years been resorted to by a number of herons which there built and bred; the other was the largest rookery in the county. The two tribes lived together for a long ~~time~~ without any dispute, till at length the trees occupied by  
: consisting of some very fine old oaks, were cut

down, in the spring of 1775, and the young broods perished by the fall of the timber. The parent birds immediately set about preparing new habitations in order to breed again, but as the trees in the neighbourhood of these old nests were of late growth, and not sufficiently high to secure them from the depredation of boys, they determined to effect a settlement in the rookery. The rooks made an obstinate resistance, but after a very violent contest, in the course of which many of the rooks and some of their antagonists were killed, the herons succeeded in their attempt, built their nests, and brought up their young. In the next season the same contest took place, which terminated, like the former, by the victory of the herons. Since that time peace seems to have been agreed upon between them; the rooks having relinquished that part of the grove which the herons occupy, the herons confine themselves to those trees they first seized upon, and the two species live together in as much harmony as they did before their quarrel." This very interesting narrative was contributed by Mr. Carter to the *Illustrated London News*.

There is a heronry still flourishing in Parham Park, in Sussex, which Mr. Knox mentions in his ornithological rambles in that county; and he gives the following genealogy to the progenitors of this colony:—"They were," he says, "originally brought from Coity Castle, in Wales, by Lord Leicester's steward, in James I.'s time, to Penshurst, in Kent, the seat of Lord de Lisle, where their descendants continued more than 200 years, and whence they migrated to Michel-grove, about seventy miles from Penshurst and eight from Parham. Here they remained twenty years, when some of the trees, which were beeches, on which they had built their nests were cut down. Their migration then took place to the fir-woods of Parham." Besides the Parham heronry, Mr. Knox mentions a small colony at Hurstmonceux, Sussex. There is also one in the Royal Park at Windsor, and others are to be found in Devonshire and elsewhere.

Miss Baker describes the heron, called in different parts of Northamptonshire by these several names:—*Hern*, *Heronsew*, or *Hernsew*, *Heronshaw*, or *Hernshaw*. The first is common all over the kingdom; the second is adopted by Chaucer, and is perhaps the most ancient; the last is used by Spenser.\*

"I wol not tellen of hir strange sewes,  
Ne hir swannes, ne hir heronsewes."

Chaucer's *Squire's Tale*.

"As when a cast of falcons make their flight  
At an hernshaw, that lyes aloft on wing."

Spenser's *Faerie Queen*.



*Hernshaw* is a corruption of the last form of the word, in Shakspeare's *Hamlet*, ii. 2. "I know a hawk from a hershaw," implying a comparison between two very different birds. If applied to "hand-saw," an implement, there is evidently no force or propriety in the passage. Dr. Johnson and others consider *hernshaw* as the shaw, or wood, where herons breed. Miss Baker says, "I am not aware that it is ever so used with us; though, in Earl Spencer's park at Althorpe, there is one of the few remaining *Hernries* in this part of the kingdom."

#### HUMMING BIRDS.

Mr. Gould, the distinguished ornithologist, has now collected upwards of 2,000 specimens of Humming Birds, comprising 320 species, whereas only ten species were known to Linnæus; in 1824, Mr. Bullock collected 100 species, and in 1842, Mr. Loddige possessed 196.

Their splendour of plumage probably gave rise to the popular error that humming birds are only found in the East. They, however, exist only on the continent of America, in the West India Islands, and in two islands of the Pacific. They do not necessarily require a high temperature, for they can support an intense degree of cold. In the Andes, at the height of 7,000 or 8,000 feet, they are most abundant, and they glitter even above the snow line, at 14,000 or 15,000 feet. Chimborazo has its peculiar bird, and so has Pichinoha; and every valley of these wild regions exhibits some variety in form and colour.

#### THE BOWER BIRD AND THE HORNBILL.

In the gardens of the Zoological Society of London is a strange nest-builder, as she appears to construct her bower, not for the purpose of containing the eggs, but to attract the other sex. This bower is constructed of bent twigs, the ends of which are inserted in the ground by the bird, each twig being bent hollow, like the ribs of a ship. This bower, which is from one to two feet long, is used as a promenade by the female bird; it is, in short, her boudoir, and just as ladies decorate their drawing-rooms with bright articles and odd things, however ugly as long as they are curious, so does the bower bird decorate her playing-place with bits of coloured cloth, coloured glass, bits of bone—in short, anything she can lay hold of. Indeed, like the magpie, she is a great thief, and when the native Australian loses anything, the first thing he does is to search *the playing-place* of the bower bird, if one is to be found in his neighbourhood.

A bird builder who constructs not for mere coquetry, but for the more serious business of life, is the red-breasted hornbill. Specimens of this bird are to be seen in the Zoological gardens, but, as far as we know, it has never exhibited its peculiar powers as a nest-builder there. In fact, the female can scarcely be said to build, but to be built up. Its nest is generally constructed in the hollow of a tree, and immediately the period of incubation begins the male bird deliberately sets to work to wall up the aperture in the tree, leaving the female bird only a small slit through which it can receive air and nourishment, which the male bird supplies. In this confinement it remains till the young birds are fit to take wing, when the opening is broken away by the powerful beak of the lord and master, and his mate and young ones liberated. Thus the bird has to endure a real confinement while its brood is being reared, a fact unique in the *accouchement* of birds. Mr. Wood says that the hornbills of Africa and America behave in this particular in exactly the same manner, although they are widely distinct in the zoological system.—*From the Times.*

#### SPITALFIELDS PIGEONS.

The neighbourhood adjacent to the Great Eastern Railway on the right is Spitalfields; and here the peculiarities which most immediately strike the traveller's eye are the pigeon coops on the roofs of the houses, and the broken windows rudely patched with paper, through which the weaver's loom may be seen at work. This pigeon fancying shows how deep the love of nature is planted in every breast; for even the Spitalfields weaver, crushed in spirit, and almost hopelessly steeped in poverty, still has a longing after the freshness and verdure of the country, with its rustic sports and quiet enjoyments; but the only means he possesses of gratifying these tastes is by keeping pigeons, and perhaps cultivating a few flowers in a pot. The birds are, however, some of the finest in the world, and occasionally realize very large sums,—five, six, or seven guineas being by no means an unusual price for good carrier pigeons, which, by the way, have been known to bring messages from the continent with unerring certainty, and in an incredibly short space of time; but the extension of electric telegraphs, truly the "sightless couriers of the air," is fast annihilating the peculiar uses of these winged messengers. It is related that thirty-two pigeons sent from *Antwerp* were liberated from London at seven o'clock in the morning, and on the same day at noon one of them arrived in

Antwerp; a quarter of an hour afterwards a second arrived; the remainder on the following day.—*Sir Cusack Roney.*

#### THE CARRION CROW OF AMERICA.

Audubon describes this bird as differing materially from the crow common in England. The American bird has greater rapacity as well as tameness. Thus, in the cities where it is protected, it enters the very kitchen, and feeds on whatever is thrown to it, even vegetables. If unmolested, it will remain in the same premises for months, flying to the roof at dusk to spend the night. Six or seven are often seen standing, in cold weather, round the funnel of a chimney, apparently enjoying the heat from the smoke. Notwithstanding the penalties enforced by law, a great number of these birds are destroyed on account of their audacious pilfering. They seize young pigs as great dainties. They watch the cackling hen in order to get the fresh eggs from her nest; and they will not hesitate to swallow a brood of young ducks. In order to keep them from the roofs of houses, where their dung is detrimental, the inhabitants guard the top with broken pieces of glass fastened in the mortar; and they often kill them by throwing boiling water upon them. Many years ago, no fewer than two hundred of these birds were daily fed by the city of Natchez.

#### THE PASSENGER PIGEON.

Audubon has touched upon this remarkable bird, and his account is as follows:—"In the autumn of 1813, I left my house at Henderson, on the banks of the Ohio, on my way to Louisville. In passing over the Barrens, a few miles beyond Hardensburgh, I observed the pigeons flying from north-east to south-west in greater numbers than I thought I had ever seen them before. I travelled on, and still met more the farther I proceeded. The air was literally filled with pigeons. The light of the noonday was obscured as by an eclipse. Before sunset I reached Louisville, distant from Hardensburgh fifty-five miles. The pigeons were still passing in undiminished numbers, and continued to do so for three days in succession. . . . Let us take a column of one mile in breadth, which is far below the average size, and suppose it passing over us at the rate of one mile per minute. This will give a parallelogram of 180 miles by 1, covering 180 square miles; and allowing two pigeons to the square yard, we have 1,115,136,000 pigeons in one flock; and as every pigeon consumes fully half a pint per day, the quantity

required to feed such a flock must be 8,712,000 bushels per day."

#### FRIENDSHIP OF A ROBIN.

Some years since, a correspondent of the *Athenæum* wrote, a robin frequented my garden in the neighbourhood of Portsmouth. Whilst at work, alone or with my children, he would follow me about to obtain insects and other things from the newly-disturbed earth. I was very regular in going out after breakfast when the weather permitted. The little creature became aware of this, and I generally found him perched on a buckthorn tree, that grew just outside the door, waiting for me. As soon as I appeared, he would begin fluttering his wings and showing other signs of pleasure. He would then move with me from place to place until I began to work, when he would settle down very near me, searching the ground, as it was turned over, for food. We continued on these terms of intimacy during the summer. In the autumn he disappeared, but returned again on the approach of winter. His proceedings during this season were often very amusing. At one time another robin came about the parlour window, which seemed greatly to excite our little friend, and they had many pitched battles. Previous to these onsets they would advance along an asparagus bed, in front of the window, in parallel lines, and when some crumbs were thrown out the conflict would commence. Whilst they were fighting the sparrows generally made off with the pieces. This war only terminated with the disappearance of the intruder. But our robin's troubles were not at an end. He was now beset by numerous sparrows, whose courage increased as the progress of winter diminished their means of subsistence. With some of these he had most desperate conflicts, and this state of things did not cease until the coming on of spring enabled the former to find food elsewhere. The robin also disappeared after a time, but soon returned with a mate, and reared a brood somewhere about the premises. During the following winter the same wars were waged as before, with similar results. Our friend mated again the succeeding spring, and appeared to have gained confidence from the manner in which he had lived amongst us. The nest was built this year on a little shelf in an outbuilding at the bottom of the garden. Here they reared their young, the hen during the period of incubation remaining on the nest even when some of the family were close to it; but it was out of the reach of the children. I shall not readily forget our friend's joy when the young ones made their appearance. One morning, on going into the garden

as usual, my attention was attracted by his uncommon agitation and proceedings. He would come about with great earnestness of manner and then fly towards the nest, and repeated this until it occurred to me that he meant something. On following him he appeared to express great delight, flying backwards and forwards until we arrived at the nest. The female was absent, and he seemed to enjoy the pleasure of introducing me to his family, hopping about with the greatest glee. We found afterwards that the hen did not approve of any of us approaching her young, as she invariably gave a note of alarm when any of us went near them.

#### THE BISCACHO, OR COQUIMBO OWL.

Major Head thus describes this curious species of owl, which is found all over the Pampas of South America. "Like rabbits, they live in holes, which are in groups in every direction, and which makes galloping over the plains very dangerous. These animals are never seen in the day; but as soon as the lower limbs of the sun reach the horizon, they are seen issuing from their holes in all directions, which are scattered like little villages all over the Pampas. The biscachos, when full-grown, are nearly as big as badgers, but their head resembles a rabbit's, except that they have large bushy whiskers. In the evening they sit outside their holes, and they all appear to be moralizing. They are the most serious looking animals I ever saw; and even the young ones are grey-headed, wear mustachios, and look thoughtful and grave. In the day-time, their holes are guarded by two little owls, which are never an instant away from their posts. As one gallops by these owls, they always stand looking at the stranger, and then at each other, moving their old-fashioned heads in a manner which is quite ridiculous, until one rushes by them, when fear gets the better of their dignified looks and they both run into the biscachos' holes."

#### TALKING CANARY-BIRDS.

A talking Canary was shown in London, in the year 1858. Its parents had previously and successfully reared many young ones; but previously to the above date they hatched only one out of four eggs, which they immediately neglected by commencing the re-building of a nest upon the top of it. Upon this discovery, the unfledged and forsaken bird, all but dead, *was taken away, and placed in flannel by the fire, when, after much attention, it was restored and then brought up by hand.*

Thus treated, away from all other birds, it became familiar with those only who fed it; consequently, its first singing notes were of a character totally different to those usual with the canary.

Continually being talked to, the bird, when about three months old, astonished its mistress by repeating the endearing term used in talking to it, such as, "*Kissie, kissie*," with its significant sounds. This went on, and from time to time the little bird repeated other words; and for hours together, except during the moulting season, it astonished by ringing the changes according to its own fancy, and as plainly as any human voice could articulate them, on the several words:—"Dear, sweet *Titchie*" (its name), "*Kiss Minnie*," "*Kiss me then, dear Minnie*," "*Sweet, pretty little Titchie*," "*Kissie, kissie, kissie*," "*Titchie, wee, gee, gee, Titchie, Titchie*."

The usual singing notes of the bird were more of the character of the nightingale's, mingled occasionally with the sound of the dog-whistle used about the house. It whistled very clearly the first bar of "*God Save the Queen*." The bird, it need scarcely be added, was very tame. About the year 1838, a canary that spoke a few words was exhibited in Regent Street, the only other instance, it is believed, publicly known.

However, here is an account of a more marvellous canary, related by Gray, the poet:—"In the year 1688, my Lord Peterborough had a great mind to be well with Lady Sandwich, Mrs. Bonfoy's old friend. There was a woman who kept a great coffee-house in Pall Mall, and she had a miraculous canary-bird that piped twenty tunes. Lady Sandwich was fond of such things, had heard of and seen the bird. Lord Peterborough came to the woman, and offered her a large sum of money for it; but she was rich, and proud of it, and would not part with it for love or money. However, he watched the bird narrowly, observed all its marks and features, went and bought just such another, sauntered into the coffee-room, took his opportunity when no one was by, slipped the wrong bird into the cage and the right into his pocket, and went off undiscovered to make my Lady Sandwich happy. This was just about the time of the Revolution; and, a good while after, going into the same coffee-house again, he saw his bird there, and said, 'Well, I reckon you would give your ears now that you had taken my money.' 'Money!' says the woman, 'no, nor ten times that money now, dear little creature! for, if your lordship will believe me (as I am a Christian, it is true), it has moped and moped, and never once opened its pretty lips since the day that the poor king went away!'"—*Correspondence of Gray and Mason, edited by Milford, 1853.*

## FLIGHT OF BIRDS.

Hawks, and many other birds, probably fly at the rate of 150 miles an hour; an eider-duck at 90 miles an hour. Sir George Cayley computes the common crow to fly at nearly 25 miles an hour. Spallanzani found the rate of the swallow at about 92 miles an hour, while he conjectures the rapidity of the swift to be nearly three times greater. A falcon which belonged to Henry IV. of France escaped from Fontainebleau, and in twenty-four hours afterwards was found at Malta, a distance of not less 1,530 miles; a velocity nearly equal to 57 miles an hour, supposing the falcon to have been unceasingly on the wing. But, as such birds never fly by night, and allowing the day to be at the longest, his flight was, perhaps, equal to 75 miles an hour. If we even restrict the migratory flight of birds to 50 miles an hour, how easily can they perform their most extensive migrations! Fair winds may perhaps aid them at the rate of 30 or 40 miles an hour; nay, with three times greater rapidity.—*Dr. Fleming's Philosophy of Zoology.*

## THE MAVIS.

Mavis is the thrush; properly the song-thrush, and distinguished from the screech-thrush, or large missel-thrush. Spenser has this line,—

“The thrush replies, the mavis descant plays.”

The distinction is elsewhere denoted,—

“The swallow, marten, linnet, and the thrush,  
The mavis that sings sweetly in the bush.”

*Taylor's Works, 1630.*

Mavis is still a current name for the song-thrush in Scotland:—

“In vain to me, in glen or shaw,  
The mavis and the lint-white sing.”

*Robert Burns' Poems.*

## ARCHITECTURE OF BIRDS.

Birds, like savage men, build with the material which comes readiest to hand. The kingfisher uses the fish-bones which are the remnants of its feast; roots and fibres line the nest of the field-haunting rook; while its cousin, the crow, which frequents warren and sheep-walk, finds a suitable material in fur and wool. A nest of a chaffinch, taken in the neighbourhood of a house, was shown at a meeting of the Zoological Society, which

had been partly constructed out of blotting-paper, fragments of visiting cards, and mottoes from crackers; and a naturalist of eminence stated that he knew of more than one instance of a nest being built with the wires from soda-water bottles. The tools, moreover, as well as the material, determine the architecture of birds. The delicately woven nest of the wren is associated with long legs and a slender beak, while the pigeon, heavy in body, but weak of foot and bill, contents itself with merely arranging sticks on a well-chosen branch; but the fern-owl, with far clumsier tools, must perforce lay its eggs on the bare ground.

It appears that there is a natural law which connects, or correlates, the mode of nest-building with the colour of the female bird. When the nest conceals the sitting bird, as a rule both sexes are adorned with gay colours, but when the male only is conspicuous, while the female is obscure in hue, the nest is open, so as to expose the sitting bird to view. As colour is more variable than structure or habit, it is generally the character which has been modified, though sometimes the modification of the nest and of the colour act and re-act on one another. The end of all this is the preservation of the female, upon whose safety the future well-being of the young depends. This "protective resemblance" is not confined to birds, for it may be witnessed in insects and other animals.



## FISHES.

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FISHES as a class have been long and well known to be *oviparous*. From the little minnow of the mountain streams to the countless myriads of the mighty deep, with few and rare exceptions, they follow one universal rule. It is true that in ancient times, and indeed for long ages succeeding, the whale and the dolphin, with the other species of the order Cetacea, were considered, even by eminent naturalists, as fishes, though known to be viviparous. In more modern days, however, this opinion came to be greatly disputed among scientific men; some, as the great Linnæus, placing them among the mammalia, since they were ascertained to possess the heart, lungs, and other internal organs of quadrupeds; others, following Ray and Willoughby, still classing them with fishes, on account of the element in which they lived and their power of progressive motion there. The theory of Linnæus has, however, long since prevailed: the whale, in spite of popular opinion, is no longer a fish, but a mammal—while the other few exceptions to the general rule (species of the shark, ray, and also the zoareus) have been pronounced by naturalists to be *ovo-viviparous*. A *viviparous fish* has, however, been found in the waters of California, and described by Professor Agassiz.

The great order of fishes to which this remarkable type would seem properly to belong contains numerous and well-known families, as curious and interesting to the naturalist as valuable to man. The common perch which frequents the streams of every land; the old wife of the British seas; the rock fish, or striped bass, so much esteemed with us as an article of food; the mullet, still more highly prized by the ancients for the beautiful changes of colour which it exhibited while dying; the anabas of India, which, from its labyrinthiform cells is enabled to remain for a long time out of water, to crawl upon the ground, and even, it is said, to climb trees; the loxotes *culator* of the Ganges, and the *Chætodon rostratus*, adroit

archers, who project water from their mouths upon their prey to the height of several feet, and never miss their aim; the sparus sargus, whose teeth resemble so closely those of man; the flying fishes of the tropical seas, and the drum fishes, musicians of our own coasts; the mackerel, of such inestimable value in our New England fisheries; and the tunny, no less a source of wealth to the Mediterranean shores; the sword fish; the surgeon, with his mimic lancets; the beautiful umbrina, and the pilot fish, who with such unerring instinct conducts the shark to his prey, are all members of the same great order to which these new fishes in all probability belong.—*Echo Newspaper.*

#### FISHES TRAVELLING ON LAND.

The Doras costata, or Hassar, is one of those species of fishes which possess the singular property of deserting the water and travelling over land. In those terrestrial excursions, large droves of the species are frequently met with during very dry seasons. When the water is leaving the pools in which they commonly reside, while most other fishes perish for want of their natural element, or are picked up by rapacious birds, the flat-headed hassars, on the contrary, simultaneously quit the place, and march over land in search of water, travelling for a whole night, as is asserted by the Indians, in search of their object. Mr. Campbell, of Sparta Estate, Essequibo, and his family, in an excursion to the sand-reefs, fell in with a drove of these animals, which were on their march over land to a branch of the Pomeroon. They were so numerous that the negroes filled several baskets with those they picked up. Their motion over land is described to be somewhat like that of the two-footed lizard. They project themselves forward on their bony arms by the elastic spring of the tail exerted sidewise. Their progress is nearly as fast as a man will leisurely walk. The strong scuta or bands which envelop their body, must greatly facilitate their march, in the manner of the plates under the belly of serpents, which are raised and depressed by a voluntary power, in some measure performing the office of feet. The Indians say that these fishes carry water within them for a supply on their journey. There appears to be some truth in this statement; for it has been observed that the bodies of the hassars do not get dry like those of other fishes when taken out of the water: and if the moisture be absorbed, or they are wiped dry with a cloth, *they have such a power of secretion, that they became instantly*

moist again. It is scarcely possible to dry the surface while the fish is living.—*Dr. Hancocki, Zoological Journal.*

#### WALKING FISHES.

Dr. Shortt has brought from India about eighteen of the Walking Fishes of India, Murrel, and Korava. The largest species, known as *Ophiocephalus striatus*, grow to upwards of three feet in length, and, if they succeed in England, will make a capital addition to our lakes and canals. The smaller variety, *Ophiocephalus gachua*, will be more interesting than useful, as they only grow to about one foot in length. Pains were taken to accustom them by degrees to confinement before shipping them in tin boxes. Dr. Day is said to have come to the conclusion that they breathe air direct from the atmosphere, as well as air in solution in the water in which they live.

#### FISHES' NESTS.

The Hassars of both species, flat-headed and round-headed, make a regular nest, in which they lay their eggs in a flattened cluster and cover them over most carefully. They remain by the side of the nest till the spawn is hatched, with as much solicitude as a hen guards her eggs; both the male and female hassar (a species of *Doras*), for they are monogamous, steadily watching the spawn, and courageously attacking the assailant. Hence the negroes frequently take them by putting their hands into the water close to the nest; on agitating which the male hassar springs furiously at them, and is thus captured. The round-head forms its nest of grass, the flat-head of leaves. Both at certain seasons burrow in the bank. They lay their eggs only in wet weather. In a morning after rain occurs, numerous nests appear, the spot being indicated by a bunch of froth, which shows itself on the surface of the water, over the nest. Below this are the eggs, placed on a bunch of fallen leaves or grass, if it be the littoral species, which they cut and collect together—by what means seems rather mysterious, as the species are destitute of cutting teeth. It may possibly be by the use of their serrated arms, which form the first ray of the pectoral fins.

#### LARGE PIKE.

We find the following in the *Dumfries Courier*:—Towards the close of last century, a feat almost unparalleled in the annals of angling was performed by John Murray, gamekeeper to John,

Viscount of Kenmure, himself a remarkably keen and successful angler. With a single rod and line, and a fly dressed with a feather from a peacock's tail, he hooked a pike in the lake, and killed him after a long and exciting struggle. He had attained the enormous weight, not of 65 lbs., but of 72 lbs. The head was carefully preserved and placed in a glass cover, and may still be seen by the curious at Kenmure Castle. The fact is recorded in Daniell's *Field Sports*. Murray was an eccentric character, and excelled in all such matters. When he died, he was buried in Kells churchyard, and his master erected a tombstone to his memory, having a rod and gun, and other quaint devices wrought thereon, and bearing the following description of his character, composed by a neighbouring clergyman, the late Alexander Macgowan of Dalry:—

“ Ah, John ! what changes since I saw thee last !  
Thy fishing and thy shooting days are past—  
Bagpipes and hautboys thou canst sound no more,  
Thy nods, grimaces, winks, and pranks are o'er,  
Thy harmless, queerish, incoherent talk,  
Thy wild vivacity, and trudging walk  
Will soon be quite forgot. Thy joys on earth,  
A snuff, a glass, riddles, and noisy mirth  
Are vanished all. Yet blessed I hope thou art,  
For in thy station well thou play'st thy part.”

Another feat in this line was performed by the late Captain James Murray and two of his school companions, during the summer of 1821. While angling for perch near the head of the lake, their attention was drawn by the barking of a dog to where a narrow channel connects the loch at Little Kenmure with the lake. Here they saw a pike floundering in shallow water, which they slew with the butt-ends of their rods. It weighed 28 lbs.

In 1854, also, a little boy of the name of Kenna, residing in New-Galloway, on examining some lines that he had baited for trout, found that he had hooked a pike about two pounds weight. On drawing it ashore, it was pursued by a huge and hungry savage of the same species, which he cleverly despatched with a stick before it could turn itself, and which he landed in all safety. It weighed 35 lbs.

Some years ago, also, the skeleton of a pike was found on the shore of Loch Ken, which, from its size, it may reasonably be concluded, must have been long the tyrant of the deep, and no mean rival of its great predecessor in the days of John Murray and his noble patron.

It is worthy of note, that while pike of great size can be found everywhere in Loch Ken, weighing 5, 10, 15, and 20 lbs., the

angler who would wish to do something great in this way should try the head of the lake. There the giants of the race have all been found; there the Ken enters the lake, and hard by are still lanes and winding bays, fringed with the bulrush, pond-weed, water-lily, ranunculus, and other plants; there, doubtless, they have the best feeding as well as the best resting-ground, and the myriads of fry that every year descend from the mountain streams to the sea have to encounter in their progress these "avid-eyed," insatiable, and savage monsters. And yet, were it not for its huge head and jaws, and horrible eyes, the pike would not be an ugly fish, as his body is rather handsome, and clothed in green and silver. Old Isaak Walton gives an elaborate description of the way to cook him, and concludes by saying, "that this dish of meat is too good for any but anglers and very honest men."

#### FORMIDABLE LITTLE FISHES.

Pazi, in his *Travels in South America*, describes as "a source of anxiety to divers several dangerous fish among the multitude struggling in the water, such as the rayfish, whose tail is furnished with a sting three inches long, with which it inflicts a very painful wound; electric eels, whose touch alone will paralyze in an instant the muscles of the strongest man; and the payara, shaped somewhat like a sabre, and equally dangerous. The lower jaw of this last is furnished with a formidable pair of fangs, not unlike those of the rattlesnake; with these it inflicts as smooth a gash as if cut with a razor; and, finally, the caribe, whose ravenous and bloodthirsty propensities have caused it to be likened to the cannibal tribe of Indians, once the terror of those regions, but now scattered over the towns and villages along the course of the Orinoco. Each time the nets were hauled on shore, half-a-score or more of these little pests were to be seen jumping in the crowd, their jaws wide open, tearing whatever came in their way, especially the meshes of the nets, which they soon rendered useless. Their sharp triangular teeth, arranged in the same manner as those of the shark, are so strong, that neither copper, steel, nor twine can withstand them. The sight of any red substance, blood especially, seems to rouse their sanguinary appetite; and as they usually go in swarms, it is extremely dangerous for man or beast to enter the water with even a scratch upon their bodies. Horses wounded with the spur are particularly exposed to their attacks; and so rapid is the work of destruction, that unless immediate assistance is rendered the fish soon penetrates the abdomen of the animal,

and speedily reduces it to a skeleton; hence, doubtless, their appellation of *mondonguero*—tripe-eater. There are other varieties of the caribe in the rivers of the Llanos, but none so bold and bloodthirsty as this glutton of the waters. The inhabitants being often compelled to swim across streams infested by them, entertain more fear of these little creatures than of that world-renowned monster, the crocodile. This last, although a formidable antagonist in the water, can be easily avoided, and even conquered in single combat by daring men, while the former, from their diminutive size and greater numbers, can do more mischief in a short time than a legion of crocodiles."

#### Sponge Fishery.

In the bottom of the sea which washes the shores of the Cyclades, the common Sponge is found in abundance, and forms the principal source whence the inhabitants derive their maintenance, trafficking it with the Turks, among whom it is in great request for cleaning their baths. Sponge-diving is consequently the principal employment of the population of the Cyclades, and no young man of the island is permitted to marry till he can descend with facility to a depth of twenty fathoms. The sea is at all times extremely clear, and experienced divers can distinguish from the surface the points to which the animal has attached itself below. Each boat is furnished with a large stone attached to a rope, which the diver seizes in his hands on plunging head foremost from the stern, in order to increase the velocity of his descent through the water, thereby saving an expenditure of breath, as well as to expedite his ascent, being hauled up quickly by his companions when exhausted at the bottom. Mr. Emerson, in his *Letters from the Ægean*, states that he had seen but one man who could remain below more than about two minutes, and the process of detaching the sponge was of course very tedious; three, and sometimes four divers descending successively to secure a peculiarly fine specimen.

## INSECT LIFE.

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### THE STUDY OF INSECTS.

Is anything that proceeds from the hands of the Great Creator too insignificant for man to investigate? A moment's reflection will apprise us that the most minute insect must necessarily be as fully perfected in its structure, in its wonderful apparatus of nerves, muscles, respiratory organs, and organs of the senses, and all their functions, and its system of circulation (proved by recent discoveries), as the largest, and, according to its rank in nature, the most gigantic animal, over which it possesses an infinite superiority of muscular strength; and when we find that there are insects scarcely discoverable without a lens, must we not exclaim, with wonder and admiration, at the stupendous power evinced in their construction; and should not this stimulate us to learn as much as we can concerning these miracles, that we may be better able to appreciate the marvellous power displayed in their creation, although we can scarcely hope to arrive at the perfect comprehension of their least attributes, the complexity of their organization, when even most simple, the multiplicity of their instincts, the quality of those instincts, and their very powerful agency in supporting the universal equilibrium of nature? Who then is bold enough to say, even to what his arrogance and assumption have dared to style a contemptible insect,—“Thou art beneath my notice?” when he feels that the pigmy might reply,—“Thou, with all thy boasted superiority, dost not comprehend me.” Humility is the crown of humanity; and let us follow the words of Solomon, and learn wisdom from the ant.—*Foreign Quarterly Review*.

### INSTINCTS OF INSECTS.

An exotic species of ant (*indefossa*) is described by Colonel Sykes as being an extraordinary instance of the operations of *instinct in so low a form* of animal life. The fondness of these

insects for sweet substances is very great, and their attacks on such things were resisted in every possible manner; yet, although the table on which the confectionary and sweets were was placed with its legs in water, and removed a short distance from the wall, they succeeded in reaching them, to the great astonishment of all, until the mode of access was discovered. Colonel Sykes says:—"I observed an ant upon the wall about a foot above the head of the sweets; it fell, and instead of passing between the wall and the table, and alighting upon the ground, it fell upon the table." Others followed its example with similar success; and it was no longer a matter for doubt as to how they continued to swarm in such numbers about their favourite food, however carefully guarded.

#### COMPOUND EYES OF INSECTS.

Mr. Carpenter, in the *Technological Repository*, states the result of microscopic observations made by him, to ascertain the truth of the existence of numerous eyes in some insects. Among the subjects experimented on by Mr. Carpenter, and which amounted to upwards of two hundred, the most familiar were—the boat-fly, dragon-fly, ant, gnat, bee, wasp, ichneumon, bombardier, inquisitor, cock-chaffer, peachfly, earwig, grasshopper, locust, cricket, and cockroach. Mr. Carpenter represents himself as fully convinced that the whole of these insects did really possess numerous and distinct eyes, varying in number, according to the species of insect,—in some upwards of forty, in others a thousand, and upwards of thirty thousand in some species! The eyes of the libellula, Mr. Carpenter says, are, on account of their size, peculiarly well adapted for examination under the microscope. They are a couple of protuberances immovably fixed in the head, and divided into a number of hexagonal cells, each of which contains a complete eye. The external parts of these eyes are so perfectly smooth, and so well polished, that when viewed as opaque objects, they will, like so many mirrors, reflect the images of all surrounding objects: each of these protuberances, in its natural state, is a body cut into a number of faces, like an artificial multiplying glass, but with this superiority in the workmanship, that as in that glass every face is plane, here every one is convex; they are also much more numerous, and are contained in a much smaller space. Each of the eyes is a hexagon, varying in its size according to its situation in the head; and each of them is a distinct convex lens, and has a similar effect in forming the image of an object placed before it. The editor of the *Repository* had also seen,



## REPTILE LIFE.

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THE Alligators and Caymans frequent the rivers of tropical America. Of these, some species, during the dry season, bury themselves in mud, and remain encrusted and torpid till the first rains, when they at once start up, shake off their crust, and rush down to the first indication of a stream. Humboldt was, one rainy night, surprised by such a resurrection of one, over whose dormitory he had unknowingly made his own. The Iguana is eaten in the West Indies and Central Africa (*Livingstone*), and considered very delicate food. Among the frog, the most remarkable seem to be a species called Matlameth, described by Dr. Livingstone as inhabiting the Kalahari district of South Africa, whose instinct, like that of the cayman above mentioned, excite him from torpor on the first symptom of rain, and one which furnishes an excellent repast. In the case of the Surinam toad, or pipal, the female hatches her eggs on her back, the young from which, when produced, bury themselves in her skin, and there undergo their transformations. This toad is eight inches, and ten or twelve in length.

### THE CROCODILE AND ITS BIRD FRIENDS.

M. Geoffrey Saint Hilaire, in justification of the well-known account of the Crocodile given by Herodotus, who says that the throat of this animal is ever lined with Bdella, states that he is avoided by all birds, except the Trochilus, which, as often as the crocodile comes on shore, flies towards him, takes up its quarters within his jaws, and relieves him of the Bdella that torment him. M. Geoffrey Saint Hilaire confirms the general fact contained in this account, and relates that there is a little bird, the *Charadrius Egyptus*, described by Hasselquist, who sometimes enters the mouth of the crocodile, attracted thither by insects, which serve for its nouriture. These insects are a

reasons—because they cannot help it. Given the primary instinct of building cells in the closest possible contiguity to each other, and the simple laws of mechanical pressure would force them to assume a hexagonal form. If a number of spheres be contained within a cylinder, and the cylinder is made gradually to close upon the spheres towards its axis, the spheres will all assume the form of elongated hexagonal prisms.

One of the most wonderful things in the natural history of bees is the marvellous fertility of the queens. Working bees live but nine or ten months, drones considerably less, but the queen bee lives four years, and lays during each year about 200,000 eggs! or 800,000 in the course of her life! In the first place, then, the adoption of large hives is of the greatest importance. The laying power of the queen is sufficient to stock a hive two or three times as large as that in common use in the neighbourhood of London. By the adoption of large hives, 100 to 168 lbs. of honey may be taken from one swarm instead of 25 to 50, which is the average yield of an ordinary hive. The swarms are also larger and stronger, and it will be easily seen that as, under favourable circumstances, bees cost nothing to feed, any increase in their numbers is a pure gain. Hives should be about twenty inches wide, by twelve inches deep, inside measure, or perhaps somewhat smaller, and should be made of straw. Wooden hives are especially to be avoided, as being almost always damp inside. When the hives become full of honey, and it is wished to prevent the bees from swarming, additional space is given to the swarm by the use of "ekes," or "enlargements from below," as opposed to "supers," or "enlargements from above." "Ekes," it seems, are to be preferred to "supers," although the honey collected in the latter commands a good price; for bees can put more than 3lbs. of honey in the former for every 2lbs. they can put in the latter. Also, in the use of supers, there is a risk, especially in hot weather, of swarms coming off unexpectedly and flying away. The use of a *nadir*, a sort of super placed underneath the hive, is also sometimes advisable, as it not only prevents swarming, which is not desired, but may, if necessary, be made to bring about an artificial swarming. Artificial swarming, by the way, is one of the refinements in the art of bee-keeping.

Scaër is a town remarkable for having preserved many old customs and superstitions; among others, the bees are considered to be entitled to share in the joys and sorrows of the family. Their hives are surrounded with a red stuff on the occasion of a marriage, with a black on that of a death. This custom is still preserved in Wales. In all parts of Brittany bees are

treated with special affection. As the redbreast is sacred, because she broke a thorn from the crown of our Lord that pierced his brow, so are the bees revered because, as we learn from the code of Hoel the Good, though they were sent from heaven to earth after the fall of man, the blessing of heaven has ever followed them in their exile.

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#### AGRICULTURAL ANTS OF TEXAS.

It appears that in Texas a species of ant, remarkable not merely for the social and industrial instincts for which the ant is elsewhere famous, but which is distinguished by the habit of sowing and reaping a certain species of grain, which, when deprived of its husk, is stowed away for use in suitable granaries. When these ants have established a colony, they construct a pavement of several feet diameter round their habitation, by paving the surface of the earth with small pieces of grit, in the way we pave a street. This pavement is kept scrupulously clean, and around it a species of grain-bearing grass (*Aristida stricta*) is sown and carefully weeded. The seeds of this plant, under the microscope, resemble the rice of commerce; and the seeds are sown in the autumn, so that the autumnal rains may bring the ant-rice up. When the crop is ripe, they cut off the grain and carry it, husks and all, to the interior of their dwelling. The husks are then removed, and are brought out and carried clear of the pavement, and always thrown out on the leeward side. In long-continued droughts, the ants make their way into the wells, and many of them fall into the water, where they cling together and collect in lumps. If one of these ants is thrown into water it will be drowned in about fifteen minutes; but out of the wells lumps of ants are drawn up in the buckets, which must have been in the water for many days, and yet the ants forming the lump are still found to be alive. It is consequently concluded that the balls of ants, by concerted action, put themselves into slow rotation, the effect of which is to give sufficient breathing-time to each constituent member of the mass to keep it alive.

#### MUSCULAR STRENGTH OF FLEAS.

Fleas breed and undergo their metamorphosis in a manner similar to the silk-worm. Eggs being collected from a dog and put into a pill-box, in a few days produced hairy caterpillars, which were fed with dead flies, and which the caterpillars ate in a very voracious manner. It was observed, occasionally, that

they cast their skins; and in about ten days after their exclusion from the egg, they spun and wove themselves little cases after the manner of silk-worms, in which they remained enclosed in the chrysalis state about nine days, and then came forth perfect fleas, armed with sufficient powers to disturb the rest or even the peace of an emperor!

The muscular power of a flea is almost beyond belief. Latreille mentions a circumstance of a flea of a moderate size dragging a silver cannon, mounted on wheels, that was twenty-four times its own weight; and which being charged with powder, was fired, without the flea being at all alarmed. Socrates appears to have measured the leap of a flea, and found it extended to two hundred and fifty times its own length—a most astonishing leap! It was as if a man of ordinary stature should be able at once to vault through the air to the distance of a quarter of a mile!—*Technological Repository*.

It may not be welcome information to the reader to inform him that the piercers of the flea, which preys on human beings, appear to be provided with four rows of bead-like threads, two on each side, twisted round each other.

### THE DEATH'S HEAD MOTH

The Death's Head Sphinx, or Moth, is the largest and most remarkable of its genus, if not the most beautiful of all its European congeners. The caterpillar is in the highest degree beautiful, and far surpasses in size every other European insect of the kind, measuring sometimes nearly five inches in length, and being of a very considerable thickness. Its colour is bright yellow, and the sides are marked by a row of seven elegant broad stripes of vivid violet and sky-blue colour; the tops of these bands meet on the back in so many angles, and are varied in that part with jet-black specks; on the bent point of the body is a horn or process not in an erect position, curving over the joint like a tail; it has a rough surface, and is of a yellow colour.

The upper wings of the Death's Head Moth are of a fine dark grey colour, variegated with orange, yellow, and sometimes white cloudy; the under wings are bright orange and transverse black bars, while along the back runs a broad blue-grey stripe; on the top of the thorax is a large patch resembling the usual figure of a scull, or death's head, of a pale grey, varied with dull ochre and black. The moth is generally very rare. The caterpillar feeds chiefly by night, and conceals itself during the day under leaves, &c. Potato and jessamine plants are its favourite food; and it is

which seem the least suited to organized existences. The same Infinite Power and Wisdom which has fitted the camel and the ostrich for the deserts of Africa, the swallow that secretes its own nest for the caves of Java, the whale for the Polar Seas, and the morse and white bear for the Arctic ice, has given the *Proteus* to the deep and dark subterraneous caves of Illyria,—an animal to whom the presence of light is not essential, and who can live indifferently in air and in water, on the surface of the rock, or in the depths of the mud.

#### SPIDERS OF CEYLON.

What shall we say of these entomological elephants, the Spiders of Ceylon, one species of which weaves threads, or cords rather, as they are correctly called, athwart the pathways, which more than once actually lifted Sir Emerson Tennent's hat off his head in riding; and, when they struck the face, produced a painful twang across that tender district of the body? There is a Ceylonese spider with legs which would span an ordinary-sized breakfast plate; and it seems to be a fact, now pretty well authenticated, that these fellows seize small birds and feast upon their blood! It is also known that there are such spiders both in Australia and in Hindostan. The webs of these spiders are strong enough to entangle and hold the small birds, on which they are said occasionally to feed. The birds, however, are more of the nature of humming-birds than of larger size. Small house lizards are also seized and devoured by these spiders.

#### AN AUSTRALIAN SPIDER.

In *The Antipodes and Round the World*, we read that in the garden of Government House is a spider which makes a more beautiful nest than any other that has ever been seen among the many interesting structures of the insect world. It makes its home of a tubular form in the ground, under the grass. A door, which is perfectly smooth and sharp edged, and looking as if cut out of leather, is fastened to the tube by the most perfect hinge; and the tube is lined with web, as smooth and glistening as white satin. It requires a careful search to discover the little, round, bare patch in the grass, denoting the presence of one of these clever builders: but when found it is worth watching. If you lift up the lid, and prop it open with a pin, you will presently see the owner of the dwelling, who is so large that he fills up nearly the whole tube, come cautiously up stairs, stop for a second or two to reconnoitre, and then, with almost lightning speed, make a rush and drag down the door. This he fastens on the inside,

in a manner which is doubtless strong enough to make good his defence against the intrusions of his expected foes, such as thrushes and jays.

### THE COCKATRICE.

The word cockatrice confessedly denotes an imaginary animal; but the cockatrice of the Bible is a very different thing from the fabulous creature of which we read in legends and heraldic books. It is confessedly a misfortune that our translators of the Scriptures have several times put the names of fictitious beings where the sacred writers speak of real ones. But these errors are due to the slender knowledge of natural history which was current when our version of the Bible was made. The fabulous cockatrice is an imaginary flying reptile, the offspring of a cock and a serpent, and supposed in its shape to combine the two. For its actual representation we must refer to books of heraldry. It was fancied to have the power of killing by means of its breath or even by its glance; hence we read in Shakspeare of "the death-darting eye of cockatrice." With regard to the animals a few times called "cockatrice" in our Bibles, a few hints may be useful. In the first place, two Hebrew words are thus rendered, and therefore two species of serpents may be meant—for that serpents are meant is undoubted. There is the word *tsiphônî*, out of which it is very likely the Greek mythologists concocted the monsters Typhon and Tisiphone. This occurs in Isa. xi. 8, lix. 5; Jer. viii. 17, as "cockatrice," whereas it is translated "adder" in Prov. xxiii. 32. In the last-mentioned passage "cockatrice" is put into the margin; whereas, in Isa. lix. 5, the exact contrary occurs—"adder" in the margin and "cockatrice" in the text. The older English version known as the Breeches Bible also has the word cockatrice wherever it appears in our authorized translation. The second word rendered "cockatrice" is *tsepha*, a shorter form of the other, as in Isa. xiv. 29. That serpents are meant, we have said is undoubted, the only question being what species. Dr. Tristram, in his useful *Natural History of the Bible*, suggests that the great yellow viper is indicated, but others that it is the sand viper, the cobra di capello, &c. The contexts show that the serpents were venomous, and the Hebrew names convey the idea that they were serpents which hissed, but how to identify them with any particular species is a problem which has not yet been certainly solved. The one point about which there is no uncertainty is that the cockatrice of the Bible was not a fabulous animal.—*Leisure Hour*.

## THE BOOKWORM.

The ravages of the Bookworm have attracted the attention of bibliographers in all ages; but the economy of the worm has been very confused. The mistake that most observers have fallen into is supposing them to be only one insect, the bookworm proper, which attacks books; whereas there are several insects. Hannett, in his *Bibliopectia*, quoting Peignot, records twenty-seven folio volumes perforated in a straight line, in such a manner that on passing a cord through the perfectly round hole made by the insect, the whole twenty-seven volumes could be raised at once. This destruction must have been done by the worm proper. Hannett mentions several insects; as the *Anglopa pinguinalis*, which deposits its larva in books in the autumn, which produce a kind of mite; but says, the most destructive are the little wood-boring beetles, *Anobium pertinax*, and *Astriatum*. Mrs. Gatty says, in a note to one of her *Parables*:—"A bookworm,—the larvæ of the *Hypothenemus eruditus*. Not but there are several other larvæ of the race which bore the minute holes through wood, leather, and paper." Here we have at least four insects named.

The Rev. F. T. Havergal, librarian at Hereford Cathedral, has recorded, as the result of eighteen years' observation, that the books were destroyed by at least two kinds of insects; one similar to, if not identical with, the death-watch. These insects have a hard outer skin, and are of a dark brown colour; they perforate wood, no matter how old or hard. The second kind of insects seems to be genuine bookworms, exactly like the worms or grubs found in hazel-nuts, white body, with a brown spot on the head. They generally go right through a volume, never stopping to make a cavity in one place. They do not relish any modern paper; they do far better paper made from 1470 to 1530. Neither do they penetrate modern millboards; but they take special delight in the old wooden book covers, principally those made of soft or sappy wood. The worthy men of old did right to bind their grand MSS. in heart-of-oak covers, with vellum over all. But, in the fifteenth century, bookbinders and their employers used softer wood, which became a sure haunt for destructive insects. In very rare instances have they attempted to penetrate MS. volumes of parchment or vellum. Mr. Havergal has found both the above insects alive and at work.

The above information has been communicated to *Notes and Queries*. Another correspondent while examining in the Bodleian Library some old black-letter fragments, kept loose in a

drawer, found a bookworm, whose ravages were very apparent. He was like a grub from a hazel-nut, white all over, with glossy head, hard to the touch, and slow in motion. Dr. Bandinel, the librarian, often met with these destructives.

#### VULTURES OF THE SEA.

An interesting addition has been made to the Zoological Society's Gardens, Regent's Park, in the shape of two frigate birds, or frigate pelicans, called by Audubon, in his work on the *Birds of America*, the vultures of the sea. The frigate bird abounds in Florida. It is chiefly remarkable for the velocity of its flight, and its structural features are interesting as being specially adapted to the attainment of that power. The wings are very long, as compared with the size and weight of the body. The mature bird is 41 inches long, measuring from the tip of the bill to the end of the tail. But the body proper measures only half this length, the other half being made up of the elongated feathers of the tail. The stretch of the expanded wings is more than twice the length of the bird, being about 86 inches. The wings are very much pointed at the ends, and are narrow relatively with their length. The frame-work or skeleton of each wing is about 24 inches long, the rest of the length being made up by the feathers. The breast-bone is remarkable from its width ( $2\frac{1}{2}$  inches) being greater than its length ( $2\frac{1}{4}$  inches); and the pectoral muscles, which move the wings, are small, but the bones supporting them are strong, and the merrythought is welded to the sternum. The legs are short, so that the bird moves with difficulty upon the ground. But it is able easily to rise from the ground or from the surface of the water by the conjoint action of the wings and tail. The plumage varies in colour at different periods of life, and in young birds has a good deal of white. But the colour of the mature bird is a brownish black, with metallic tints. The birds now introduced to the gardens are quite young. The feet are webbed, and the claw of the third toe is long and toothed like a comb, its function being, as Audubon thinks, to cleanse those parts of the plumage which cannot be reached by the bill.



## VEGETABLE LIFE.

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### PLANTS, CHARACTERISTICS OF NATIONS.

ACCORDING to Professor Schouw, in the South Sea Islands the large bread-fruit tree and cocoa-nut palm supply important articles of food and clothing. New Zealand flax is characteristic of the islands whence it derives its name. Among the Malays of the Indian islands, the clove-tree, nutmeg, pepper, and ginger are the principal characteristic plants. There are also common in India maize, which gives the most abundant, and also the most uncertain of all crops; was originally confined to America, which was also the case with the potato. The Maguay plant (*Agave potatorum*) is a valuable product of Mexico, and may be called the vine of the Mexicans; while *Agave Americana* is useful for clothing. *Chenopodium Iniuon* is a plant used for food in the high districts of Mexico, Peru, and Chili. The Mauritius palm is an important means of subsistence to the tribes of the Orinoco; the date palm is generally useful in the south of Africa, and in the Arabian deserts. The coffee-tree characterizes the south of Arabia and Abyssinia. Rice and cotton are two important plants for the Hindoos; the tea plant for the Chinese; wheat, barley, rye, and oats, to the Indo-Caucasian races of Western Asia and Europe; the olive and the vine for the inhabitants of Mediterranean districts; and the reindeer moss for the Laplanders.

### PHYSIOLOGY AND STRUCTURE OF PLANTS.

By a beautiful morphological law, the different appearances of the various organs of plants arise from arrested development. The stamens, pistils, corolla, calyx, bracts, being simply modifications or successive stages of the leaf. This is one of the many valuable discoveries we owe to Germany; it being made by Göthe late in the eighteenth century.

The general structure of plants we learn from Adamson, Duhamel de Monceau, and above all, Desfontaines,\* three eminent thinkers, who proved the practicability of a natural method hitherto unknown, and of which even Ray himself had only a faint perception. Thus, by weakening the artificial system of Linnæus,† prepared the way for an innovation more complete than has been effected in any other branch of knowledge, namely, the botanical generalizations of Jussieu. Among these need only be mentioned the three vast propositions which are now admitted to form the basis of vegetable anatomy. The first is, that the vegetable kingdom, in its whole extent, is composed of plants, either with one cotyledon, or with two cotyledons, or else with no cotyledons at all. The second proposition is, that this classification, so far from being artificial, is strictly natural; since it is a law of nature, that plants having one cotyledon are endogenous, and grow by additions made to the centre of their stems, while, on the other hand, plants having two cotyledons are exogenous, and are compelled to grow by additions made not to the centre of their stems, but to the circumference;‡ The third proposition is, that when plants grow at their centre, the arrangement of the fruit and leaves are threefold; when, however, they grow at the circumference, it is nearly always five-fold.§

#### MOTIONS OF PLANTS.

The phenomena of flowers unfolding or closing under sunshine, of which everybody is aware, are strictly referable to the class of Vegetable Motions; although as these occurrences may be owing to some irritation exercised upon the tissue by light, they ought, perhaps, to be considered of a class essentially distinct from those instances where motion takes place by

\* D. Lindley (*Third Report of Brit. Assoc.*, p. 33) says that Desfontaines was the first who demonstrated the opposite modes of increase in dicotyledonous and monocotyledonous stems.

† It is curious to observe how even good botanists clung to the Linnæan System long after the superiority of a Natural System was proved. This is the more noticeable because Linnæus, who was a man of undoubted genius, and who possessed extraordinary powers of combination, always allowed that his own system was merely provisional, and that the great object to be attained was a classification according to natural families. Indeed, what could be thought of the permanent value of a scheme which put together the reed and the barberry, because they were both hexandria.

‡ Hence the removal of a great source of error, since it is now understood that in dicotyledons alone can age be known with certainty.—*Henslow's Botany*.

§ The classification by cotyledons has been so successful, that, "with very few exceptions, however, nearly all plants may be referred by any botanist at a single glance and with unerring certainty to their proper class; and a mere fragment of the stem, leaf or some other part, is often quite sufficient to enable him to decide the question.—*Henslow's Botany*."

an inherent power of the species, independent of external stimulants. With the unfolding and closing of flowers must also be arranged those singular motions in the parts of fructification which occur upon their being touched: if the filaments of the barberry are irritated, they rise up and strike the anthers against the stigma; if the sexual column of the stybidium which is bent over on one side of the flower is touched, it swings over instantly to the other side. Several causes of this power of motion occur in Orchidaceæ: if the *Candicula* of the pollen masses of *Cartasetum* is disturbed, it springs up so violently as to separate itself from the column on which it grows, and to dart to a considerable distance.

A very singular instance of motion in the flowers of another plant of this kind, growing in the Swan River Colony, has been described by Mr. Drummond. The lower lip, he says, in which the anthers are placed, is a boat-shaped box; the upper lip, which he supposes to be the stigma, forms a lid which exactly fits it; the hinge on which the lid moves springs from the upper part of the flower, and is attached to its centre; and when it opens, the upper part turns round within the box, comes out at the bottom, turns up and back, so that when fully expanded it stands fairly over the flower. The moment a small insect touches the point of the lid it makes a sudden revolution, brings in the points of the lid at the bottom of the box, so that it has to pass the anthers in its way, and makes prisoner any small insect which the box will hold. When it catches an insect it remains shut while the insect moves about; but if the insect be not caught, the box opens again. The plant here imperfectly described is, perhaps, a species of *Caleana*.

In the Sensitive Plants, various species of *Mimosa*, especially *M. Pudica*, the leaves fold up on being touched; and this so slowly, that it is easy to perceive that the folding is effected by the gradual communication from leaflet to leaflet, of the shock produced by the touch: if a portion of one end of the leaflets of the *Mimosa* is cut off, the whole of the leaflets of that pinna gradually fold up, one after the other, from the point to the base; then the neighbouring pinna will fold up their leaflets from the base to the point, and presently the petiola will suddenly bow itself down; whereupon the folding up of the remaining of the pinna will take place; sometimes after a little space, the leaves above and below will also close up, all under the influence of the one original injury. These curious phenomena have been watched with care by M. Dutrochet.

Many other plants possess this kind of sensitive power in

their leaves. It is recorded that in Senegal there grows a plant which the natives call by a name equivalent to "How d'y'e do?" as if offered a friendly salutation by its bowing to those who touch it. The "sleep of the leaf," that is leaves folding up and drooping at night, while they raise themselves and unfold by day, are powers of motion in the limbs of plants, which are doubtless of the same nature as that of the Sensitive Plant and its allies.

What the cause of these singular motions may be, has never been explained, and it seems useless to inquire: they appear to belong to the class of first causes, concerning which we know nothing further than their effects. It is evident that they are quite distinct in their nature from such motions as that of a stem bending towards the light, in consequence of the process of its solidification taking place more on the side exposed to light than on the other side.—*Abridged from the Penny Cyclopædia.*

To the same class must be assigned the fly-catching leaves of *Dionæa*: this plant, which grows in the wild marshes of Carolina, has a leaf which is bordered with a row of strong teeth, and when spread open, is strikingly similar to one of the toothed iron traps when set as used for catching game, that, is it consists of two rounded sides, each furnished with a row of strong teeth. Near the middle of each side there grow three stiff bristles, placed in the form of a triangle; if one of these bristles is touched by an insect, or any other means, the two sides of the leaf spring up instantly, the teeth cross each other, and the insect is held so fast, that it can only be extricated by forcing the side of the leaf asunder, an operation of some difficulty, so great is the muscular force with which the contraction is effected. These movements are all owing to a specific irritability resident in the moving organ, and must be distinguished from teeth, which takes place, to all appearance spontaneously.

John Hunter thought that, though animals can do many things which plants cannot, still, the immediate cause of action is in both cases the same. In animals, there is more variety of motion, but in plants there is more real power. A horse is certainly far stronger than a man, yet a small vine can not only support, but can raise a column of fluid five times higher than a horse can. Indeed, the power which a plant exercises of holding a leaf erect during an entire day, without pause and without fatigue, is an effort of astonishing vigour, and is one of many proofs that a principle of compensation is at work, so that the same energy which in the animal world is weakened by being

directed to many objects, is in the vegetable world strengthened by being concentrated on a few.—*Buckle's Hist. Civilization.*


#### GERMINATION OF SEEDS.

Prof. Agassiz has for a number of years experimented to ascertain whether the direction of the plumule and radicle of plants is not determined by something within the seed, in order to obtain some analogy to the wings, arms, and other extremities of the body of animals. He sowed cresses in flower-pots, in different positions, and the plumule always grew up, while the radicle always grew down into empty space.

#### VEGETATION ON THE MOON'S SURFACE.

On the Surface of the Moon are seen numerous streaks or narrow lines, about a hundred in number, which appear perhaps more like long narrow furrows than anything else. Sometimes they spread themselves on the lunar disc in straight lines; sometimes they are seen slightly curved; in every case they are shut in between parallel borders. It has often been supposed that these furrows, the true nature of which has remained hitherto unknown, represent the beds of ancient dried-up rivers, or rivers that have not yet ceased to flow. Other astronomers think they are streams of lava which have been vomited by lunar volcanoes, and which reflect the light of the sun with more intensity than the adjacent regions. M. Schwabe, a German astronomer, endeavours, however, to give them another explanation. He has published in the *Astronomische Nachrichten* some facts which tend to show that these lines are the result of a vegetation on the surface of the moon. According to the author, if the surface of the moon be examined attentively with a good telescope and a proper illumination, we discover between the lines or luminous furrows of the high mountain called Tycho; and on different other points a quantity of very delicate parallel lines of a greenish tint, which were not visible some months before the observation, and which disappear a few months after, to return again in the proper season. These lines, which are darker than the adjacent parts, are clearly the result of vegetation, and it is this vegetation which makes the sterile parts of the moon appear as bright luminous streaks.

#### COLOUR IN VEGETABLE STRUCTURES.

ur, by varied dispositions of quantity, and diverse degrees

of intensity, may materially alter the general appearance. As a general principle, colour is used to assist form, and also by its enchantments to add to the beauty of the organism. In vegetable structures the primary colours, viz., blue, red, and yellow, are exhibited sparingly, occurring almost exclusively in flowers of a more or less diminutive character when compared with the entire organism. Secondary colours are widely diffused—at least the secondary colour green, which is remarkably cheering and grateful. The tertiary colours are also prominent in the general effect of nature, and, if not in their maximum intensity, they are exhibited in their tints and hues. Although the general colour of vegetable nature is green, which is a secondary colour, nevertheless this green only appears as such when near the eye of the spectator; for not only is there an opacity in the atmosphere, which must necessarily change the green into a hue or shade of that colour, but the atmosphere is also more or less blue, which, added to the green, as the spectator recedes, causes the green landscape to become more and more blue; and as one equivalent of blue added to green makes a compound of these, which would be an extremely blue-green, it follows that the aspect of the distant landscape is that of a blue-green, and not green proper; and as the opacity of the atmosphere tends towards white or light during the day, the distant landscape will become a tint of blue-green, and as evening dawns, the white aerial vapours, mingling with the evening twilight, will give a more neutralized effect, the real darkness, or absence of light, giving a shade to the blue-green, while the vapours, adding white, give a tint which, mingling, cause a neutral aspect, tinged with blue-green.—*Art Journal*.

#### PROTRACTION OF VEGETABLE LIFE.

The protraction of Vegetable Life in a dry state is, in some cases, very extraordinary. In 1830, Mr. Houlton produced before the Medico-Botanical Society a bulbous root which had been discovered in the hand of an Egyptian mummy, in which it had probably remained for two thousand years; it germinated on exposure to the atmosphere, and when placed in the earth it grew rapidly.

#### REPRODUCTIVENESS OF VEGETATION.

Nature has given to certain of its vegetable productions more duration than to empires; certain oak trees have seen many dynasties pass away; and the acorn that we tread under our

feet, the olive-stone that we roll between our fingers, and the cedar-cone that is swept by the wind may flourish and cover the ground with shade, when the hundreds of generations which may come after us will have given back to the earth that handful of dust that they alternately have borrowed from it.—  
*De Lamartine.*

#### VITAL HEAT OF PLANTS.

M. Dutochet has shown, by means of his thermo-electric machine, that every plant not only possesses a heat of its own, but that such heat, subject to a daily impulse, attains its maximum about the middle of the day, and presents its minimum during the night. The hour of the maximum varies in different plants from 10 a.m. to 3 p.m.

#### "SEEING GRASS GROW."

The celebrated Spanish botanist, Cavanilles, was the first who entertained the idea of "seeing grass grow," and directed the horizontal micrometer threads of a powerfully magnifying glass at one time to the apex of a shoot of the bambusa, and on another on the rapidly growing stem of an American aloe.

#### MINUTE VEGETATION.

Countless multitudes of individual cells, or vessels, or fibres, are required to form but a very small portion of vegetable matter. So exceedingly minute are they, that it has been calculated that above 10,000,000 vesicles of cellular tissue are contained in a fungus called *Reticularia maxima*, three or four inches broad, and something less than half an inch thick. A single thread of hemp, which is not thicker than a human hair, is composed of a considerable number of tubes of woody tissue glued together; and the stalk of a strawberry-leaf conceals hundreds of spiral vesicles in its centre.

#### MINUTE PLANT.

As the greatest contrast to the Douglas Pine of the Columbia River, and the gigantic *Jequoia* of California, 360 feet in height. Humboldt cites not a plant from among a vegetation stunted by cold either of latitude or elevation, as is the case with the small arctic willow tree, two inches in height, but a small *enogamanous* plant of the fine climate of the Brazilian pro-

vince of Goyaz. Here the moss-like *Tristicha hypnoides* hardly reaches the height of three lengths of an inch, which Auguste St. Hilaire at first mistook for a moss, but which he found provided with organs like our majestic oaks and the gigantic trees which rise to the height of some of our loftiest buildings.—*Aspects of Nature.*

#### PLANTS AND PARASITIC ANIMALS GROWING IN THE BODIES OF LIVING ANIMALS.

Dr. Leidy, of the United States, has published an elaborate history of a most remarkable series of plants, in many cases accompanied by parasitic animals, found growing within the interior of the bodies of living animals. In some of the latter it is stated, growing plants are never absent; and in one species of insects a forest of vegetation is always found covering the inner surface of the second stomach. Some of the plants are as long as half an inch, but usually they are much smaller. They grow attached to the mucous membrane of the cavities in which they are found, and occasionally form the exterior covering of worms infecting the same cavities.

#### SLEEP OF PLANTS.

In the middle of the eighteenth century, botanists thought they had made a new discovery, which they called, by a very pretty metaphorical name, the *Sleep of Plants*. It was observed, however, as far back as the time of Chaucer, who, speaking of a flower, in his *Legende of Good Women*, has the following lines:—

“ There lovith no wight hartyer alyve,  
And when that it is evyn, I rynne belyve,  
As sone as the sonne gainneth to west,  
To see this flowre, how it *will go to rest*,  
For fere of night, so hatith the darkenes,  
Her chere is plainly spread in brightnesse  
Of the sonne, for then it will inclose.”

#### A LONG PLANT.

If extraordinary development in point of size is to be regarded as a proof of long continued organic life, particular attention is due to one of the thalassiophytes of the submarine vegetable world—i.e., a gigantic fucas (*Macrocystis pyrifera*). This sea-plant attains a length of 360 feet, equalling the height of the loftiest tree. It is found on the north-west of America, and extends, it is believed, as far as Kamschatka, and it floats



among the pack-ice in the Arctic seas. The immense length to which the bands or ribands and the cords or lines of cellular tissue of the *Macrocystis* attain appears to be limited only by accidental injuries.

#### PERIODICAL FLOWERING OF PLANTS.

Quetelet, in his work *On Probabilities*, among other things, turns his attention to the time of the Flowering of Plants. This he found not to be at all capricious, but regulated by the most stringent laws. It is in all cases the temperature which determines the period of inflorescence.

The common lilac blossoms so soon as the square of the *mean daily temperatures* (as indicated by the centigrade thermometer) amounts to 4,264°, so that the mean time of its flowering at any given station may be at once determined from the meteorological record of its climate. At Brussels this mean date is the 27th or 28th of April. In other localities it occurs earlier or later by about three or four days for every degree of latitude south or north of Brussels; and about five or even six days later for every hundred yards elevation above the level of that city, which is itself sixty-five yards above the sea.

#### GROWTH OF CORK.

The species of oak called the *Cork Tree* lives the longer by frequent stripping; because the cork is in truth nothing more than a fungous substance, which prevents the old cuticle being thrown off, and thus proves injurious to the whole plant. Drummond notes that "when the tree is left to nature, it seldom lives longer than fifty or sixty years; but when the cuticle is stripped off every eighth or tenth year, it will live above a century and a half."

#### FREEZING NOT INJURIOUS TO PLANTS.

Professor Leconte, of the American Association, Albany, from examinations made during the winter of 1850-51, found that roses, pines, and other plants, which had become so frozen that they snapped off like pipe stems, were met with uninjured by this intense freezing; which has little or no effect on plants with considerable pith, as elder, &c. Trees have been known in *Hudson's Bay*, Canada, and Maine, to have been frozen so that the *physical qualities* of the wood appeared to be altered, yet *they lived and thrived* with unabated vigour on the return

of warm weather. The observations of Erman, Humboldt, and others, prove that in Siberia the ground is frozen to a great depth, so that even the fibres of the roots, and the roots themselves, must be solid icicles. Indeed, the larches in Siberia not only have their roots resting upon a frozen substratum all the year round, but are themselves frozen for nearly eight months in the year. And large portions of Europe and North America, lying north of the isothermal line of 32° Fahr., support extensive forests of birch, spruce, larch, Scotch fir, &c., where the ground-ice is perpetual. Some facts also show that the splitting and rending of trees by freezing is occasioned by the unequal contraction of the layers of wood, caused by a sudden application of cold; for observation leads to the belief that the coagulation of the sap alone does not produce this effect.

#### SLEEP OF PLANTS IN THE ARCTIC REGIONS.

Mr. Seeman, the naturalist of Kellet's Arctic Expedition, states a curious fact respecting the condition of the vegetable world during the long day of the Arctic summer. Although the sun never sets while it lasts, plants make no mistake about the time when, if it be not night, it ought to be, but regularly as the evening hours approach, and when a midnight sun is several degrees above the horizon, drop their leaves and sleep, as they do in more favoured climes. "If man," observes Mr. Seeman, "should ever reach the pole, and be undecided which way to turn, when his compass has become sluggish, his timepiece out of order, the plants which he may happen to meet will show him the way; their sleeping leaves tell him that midnight is at hand, and that at that time the sun is standing in the north."

#### THE POLAR PLANT.

This plant, which is also known as the Compass Plant, derives its name from the fact, that its lower leaves are said to present their faces uniformly to the east and the west, the plane of the leaf being north and south, or coinciding with the meridian plane. It is found in Southern Michigan, and on the prairies generally, from Texas to Iowa; its peculiarities are well known to hunters, trappers, &c.; and it is said that the Indians make use of it as a guide in cloudy weather. The polarity of the plant are referred to the presence of iron in some of its compounds; but analysis with the most delicate tests give *no trace of it*. Others have conjectured the polarity to be due to electrical currents, as the plant is full of resinous matter.

A resident in Wisconsin thus describes the plant:—"The large radical leaves of *this species of the sunflower tribe* rise so much above the grassy turf of the prairie as to form conspicuous objects; and when thus exposed, they generally present their flat surface towards the rising and setting sun, thus turning their numerous pointed tubes towards the north and south." Dr. Gray states it as a well-known fact that leaves ordinarily turn their upper surface to the light; but vertical leaves, as those of the Polar Plant incline to be, take a position which exposes the two surfaces equally to the light of the sun; and such upright radical leaves, by presenting their surface to the east and west, most nearly fulfil this condition. In the specimen of this plant growing in the Botanic Garden at Cambridge, Mass., the leaves are as frequently turned in other directions as north and south.

#### POISONOUS PLANTS.

Among the poisonous plants of the Euphorbium tribe are the common box, the leaves of which are sudorific and purgative. According to Hanway, camels eat them in Persia, but die in consequence. The Ethiopians are said by Viréy to form a mortal poison for their arrows from the juice of Euphorbia heptagora. The juice of another species (Exocaria Agalbocha) and even its smoke when burnt, affects the eyes with intolerable pain—as has been experienced by sailors sent ashore to cut fuel, who, according to Rumphius, having accidentally rubbed their eyes with the juice, became blinded, and ran about like distracted men, and some of them finally lost their sight. The famous Machineel tree is said to be so poisonous that persons have died from sleeping under its shade. This is doubtless indeed, by Jacquin, who, however, admits its extremely venomous qualities; but it is by no means improbable that the story has some foundation in truth, if, as Jacquin truly remarks, the volatile nature of the poisonous principle of these plants is considered. The powdered fruit of another species is used in the colony of the Cape of Good Hope to poison hyenas, as nux vomica is used to poison the stray dogs in Europe. The seeds of another species yield an oil, which, boiled with oxide of iron, forms the varnish used by the Chinese for boxes, &c.

#### POISONED ARROWS.

*The Plant from which the far famed Worary poison is extracted, is a species of strychnos. The poison is put*

into small gourds, or fruit capsules, of Worry plant, and the arrows being poisoned, are propelled by blowing them through a reed formed of a slender spike of palm. The poison is extracted solely from the bark of the plant. Its mode of action is singular; for though, when introduced into the blood, it soon becomes fatal, when taken into the stomach it produces no sensible effect; in which respect it differs remarkably from every other species of the strychnos family.—*Dr. Hancock.*

#### THE ATROPA BELLADONNA.

This malignant poisonous plant is supposed to have been that which the Roman soldiers, urged by hunger ate in the Parthian war. Plutarch tells us that on this occasion it caused loss of the memory and senses; and that the unfortunate victims of it were prone to move every stone that they met with, till ultimately the poison subdued their strength, and they died.

Buchanan also relates that the Scots mixed the juice of the plant with the food which they supplied to the Danes, their invaders. It had an intoxicating effect, and the Scots became their destroyers.

#### "MUMMY WHEAT."

In the year 1840, Mr. Martin Farquhar Tupper detailed minutely the sowing, growing, and gathering at Albury, in Surrey, some grains of Wheat which had been found by Sir Gardner Williamson on opening an ancient tomb in the Thebaid; and Mr. Tupper having taken great pains to secure the identity of the seed, had no doubt that he had gathered the product of a grain preserved since the time of the Pharaohs. Several other instances of this ancient wheat flourishing are related;\* but the fact has been much disputed by men of science; and in 1851, Professor Henslowe, the eminent botanist, stated that "the existence of plants growing from seeds is all erroneous." A Correspondent of *Notes and Queries*, No. 161, states that, with a desire to be convinced, he has never yet met with a complete chain of evidence as to the identity of the seeds: some one of the links has been wanting; either wheat, if proved to be found in mummy bandages (not having been previously placed there by Arab dexterity), has failed to vegetate, or that which vegetated has not been satisfactory as to the finding.

In 1840, a Committee of the British Association performed the experiment upon the germination of mummy and other seeds.

\* See *Curiosities of History*, pp. 9, 16.

The experiments were carried on seventeen years; and in 1857 the final Report was that the greater number of seeds lost their vitality at eight years, and that forty-three years was the longest period to which they retained it. The experiments made by the Association did not confirm the common belief regarding the indefinite vitality of certain seeds—for instance, the mummy seed. Too much care could not be taken in relating such cases. It was not sufficient to get a parcel of seeds from a mummy and put them in the ground; the mummy should be got out of the tomb, because no one could say what might not occur during the transfer of the mummy-case; so that unless some person quite capable of making the experiment should unroll the mummy with his own hands, plant the seeds, and keep them constantly under his own supervision, the experiment should not be considered satisfactory.

#### THE AMERICAN ALOE.

Professor Daubeny has exhibited to the British Association a specimen of *Agave Americana*, which began to throw up its flower-stem in May, 1841. The first blossoms opened about the end of July, and it went on flowering till October. Several suckers were removed from the plant after the blossom was over, and one which grew on a kind of underground stem, of perhaps two and a half feet long, which had apparently been lengthened in seeking for a convenient place to reach the light, had three buds at the end of it. This was planted, and in May, 1842, one of the buds opened in the form of an imperfect flower, having some green leaves with spikes on the edge, as in ordinary leaves, and others approaching to the form and colour of true petals, and two perfect stamens, with anthers and farina, and others distorted.

Mr. Babington says this is a curious instance as occurring in the aloe. The aloe was a plant that flowered once, and then died: it was an animal with a longer period of existence than other animals. Dr. Lankester stated this to be an instance of regular morphosis. It was interesting as occurring in a plant that so seldom blossomed in this country. The cause of the morphosis had probably been the cutting off the supply of nutriment to the buds by the removal of the suckers from the parent plant.—*Athenæum*, No. 770.

In the year 1863, there was in one of the conservatories at the Botanic Garden, Oxford, in flower an unusually fine plant of the great Vera Cruz Aloe. It had a flower-stem upwards of *twenty feet in height*, bearing on its numerous lateral branches

many hundreds of pale green flowers. The only recorded instance of a plant of this species producing flowers in this country (says the *Oxford Journal*) appears to be that which flowered in the Royal Gardens, Kew, in the summer of 1811, and was figured in the *Botanical Magazine*. This must not be confounded with the American Aloe (*Agave Americana*), which not unfrequently occurs in collections in this country. The Vera Cruz Aloe is stated to be of about eighty years' growth. This statement, if correct, favours the popular notion that plants of this genus flower but once in a century; but the maturity of the *Agave Americana* varies with circumstances, from ten to fifty, or even seventy years.

#### THE MUSTARD SEED OF SCRIPTURE.

"A grain of mustard seed" is said in the parable to be "the smallest of all seeds, but when it is grown up, it is the greatest among herbs, and becometh a tree, so that the birds of the air come and lodge in the branches thereof." The mustard of our own country is very far from answering this description; but there is in the East a species of *Sinapis*, to which it no doubt alludes. It is called by Linnaeus *Sinapis anacoides*. Its branches are real wood, as appears from a specimen once in the collection of Sir Joseph Banks. Lightfoot, Buxtorf, and others quote the Jewish Rabbis to the same effect, whose testimony cannot be suspected of partiality to the New Testament. In the *Talmud* of Jerusalem it is said,—"There was in Sichi a mustard tree which had three branches, one of which, being cut down, served to cover the hovel of a potter, and yielded three *cabs* of seed." The Rabbi Simeon says,—"He had in his garden a shoot of the mustard tree, on which he climbed, as if on a fig tree." These statements are at least sufficient to show that we should not form a judgment of Eastern herbs by those that are familiar among ourselves.

#### VEGETABLE IVORY.

In Darien, on the banks of the river Cupica, were found by Seeman, in Captain Kellett's Expedition of the *Herald*, vast groves of the Vegetable Ivory Nut—a species probably distinct from that found on the Magdalena. The Darien kind always grows gregariously and unmingled with other trees, and even herbs; the flowers are exceedingly odorous, emitting a scent like that of almond essence, and attracting swarms of bees. Each plant bears from six to eight heads, each when ripe weighing about twenty-five pounds.

## THE VANILLA PLANT.

The history of the migration of the Vanilla plant from America to the East Indies is too interesting not to be made known, because it brings to mind in every respect the episode of the transportation of the plant of the coffee-tree taken from the hot-houses of Amsterdam, given to Louis XIV., and father of the three plants, one of which was taken to the French Antilles by Captain Declieux, who, in a scarcity of water experienced by the ship's crew, shared the small quantity which he had to drink between himself and his dear coffee-plant. Indeed, only one of the Vanilla roots stood the passage from Belgium to the East Indies; but it was only by the greatest care in preserving it from the rough treatment of the sailors, from the changes of temperature, and from the salt water which was thrown upon it. It would undoubtedly have perished if M. Marchal had not made it his darling child. The plant so happily saved was given to the Botanic Garden of Buitenzorg at Java, and prospered there so well that it flowered; and it is without doubt that which was afterwards described by Dr. Blume, who on account of its green flower named it *Vanilla viridiflora*; so that this name should also be regarded as a synonym of the specification, already so perplexed, of this species.

Humboldt tells us that the Mexicans were already in the habit of perfuming their chocolate when the Spaniards discovered this part of America. The early travellers in this region, however, found the American chocolate to be a detestable beverage, to which the Europeans afterwards gave an exquisite flavour. Chocolate was brought from Mexico into Europe in 1520; but it appears that Vanilla was brought to the Continent as a perfume, about the year 1510, at the same time as indigo, cochineal, and cacao itself—that is to say, ten years before the arrival of tobacco.

It appears from the researches of Professor Miquel that the "manna" which fell in the province of Van, in Asia Minor, in 1845, consisted of fragments of *Lichen esculentus*. These must have been torn from their woods by a storm, and carried through the air to the places where they fell.

## SAPHIRE AND WOAD.

During a violent storm in November, 1821, a vessel passing through the English Channel was driven ashore near Beachy-head, and the whole crew were washed overboard, four only

ing saved from an immediate death by being thrown on the rocks on which the vessel struck. A lingering and terrible fate seemed to await them; for, although not under water, the waves appeared to be rapidly gaining on them. The darkness of the night and the violence of the storm prevented any help coming to them, and they sat awaiting the waves which roared around and engulfed them at last, as they had their shipmates before. In this terrible moment one of the sufferers, grasping a weed to hold himself more firmly on the rock, at once recognized it was the samphire; and knowing that the samphire is never submerged in the sea, he felt assured that he could say to the waves, "Hitherto shalt thou go and no further." Trusting to the assistance of this child of faith, the poor fellows remained on the rock till the morning. They were not deceived: the sea, having reached its bounds, gradually retired, light broke on the wrecked seamen, and they were rescued from their perilous situation, having no doubt a grateful remembrance of the cheering, hope-giving words suggested by the root of samphire in their dire necessity. It brings us back to the days of our loved Pinnock to find the ancient British dye Woad, to hear that this plant is still cultivated in this country for the purposes of the dyer; not actually to give the blue colour for which it is famous among our ancestors' toilet requisites, but to form a base or mordant for a black dye. It is cultivated in Lancashire principally by persons who devote themselves to the pig; and as it is a very exhaustive one, the cultivators rarely bring more than two crops off the same ground, they are obliged to wander farther afield in search of new pastures. The best kind of woad is worth £20 a ton. It is certainly never startling to hear that if we no longer go with our bodies painted with this pigment, we still find it necessary to employ it on the broad-cloth with which our bodies are covered—an instance this of the conservative nature of our habits.—*Lanster's English Botany*.

#### THE "MER DE SARGASSO."

The "Mer de Sargasso," as the Spanish navigators termed the central portion of the Atlantic stretching westwards from the Canaries and Cape Verd Islands—a surface fifteen times as great as that of Great Britain—may be described as a vast stagnant pool, receiving the drift seaweed which the surrounding currents fling into it, and generating on its calm surface what has been well called "an oceanic meadow" of seaweed—the *is natans* of botanists. It is in this tract of sea that we find



such wonderful species of fuci as the *Macrocystis pytifera*—having stems from 1,000 to 1,500 feet in length, and but a finger's size in thickness, branching upwards into filaments like packthread. The vast domain of marine vegetable life is the receptacle, as indeed are the waters of the ocean generally, of an equal profusion of animal existence—from the minute luminiferous organisms which, to borrow Humboldt's phrase, "convert every wave into a crest of light," to those larger forms of life, many of which derive nutriment from the waters alone, thus richly impregnated with living animal matter. Reason and imagination are equally confounded by the effort to conceive those hosts of individual existences—*cette richesse effrayante*, as Cuvier terms it—generated or annihilated at every passing instant of time. No scheme of numbers can reach them, even by approximation; and science is forced to submit its deductions to the general law, that all the materials of organic life are in a state of unceasing change, displacement and replacement under new forms and altered functions, for purposes which we must believe to be wisely designed, but which transcend all human intelligence.—*Edinburgh Review*.

#### A TROPICAL AIR-PLANT.

A wonderful tree—if tree it can be called—grows throughout the West India Islands of South America, as far south as Brazil, and perhaps in Florida. It is chiefly remarkable for its *destroying other trees*, on many of which it grows, at almost any height from the earth. It mainly grows downwards, like a cord, increasing to the size of a rope, or hawser, or growing even larger. In ascending, it makes little more than a bush, while the root may be thirty or forty feet long. Supposing, then, our plant to start under favourable auspices, not very high above the ground, and from a hole in an erect trunk, the ascending stem presents nothing of special interest; but the root, passing down near the foster-tree, is most singularly affected by it. It would seem as if possessed of a most grateful affection for that which gives it support; so much so, as to multiply arms with which to embrace it. It sends off from time to time, at irregular distances, from one side to the other, slender, almost thread-like branches, which pass horizontally around the tree, till they meet on the opposite side and unite; or it may be, if two should *not* meet, they would pass entirely round it and unite again with the main root. Gradually the foster-tree is embraced by a succession of *these cords*. But, by the same regular growth, these cords *spread upward and downward*, till they become hoops. And

these hoops often send off branches from one to another; and these in their turn widen, till the tree is enclosed in a living cylinder or a cylindrical network of bands, having immense strength; and as these seem to increase only laterally, the growth of the tree is checked, and its destruction is inevitable, sooner or later, according to its less or greater power of endurance.

A tree on which the Copey has woven a pretty complete net cannot long retain its vitality. Its circulation is stopped, and it dies. But this *seems* not to check the growth of the destroyer, so long as the trunk remains erect. But when they both fall, the parasite cannot long survive. Copey is, probably, the aboriginal or Carib name of the plant, which, like many others, has been retained. Scotch lawyer, or Scotch Attorney, by which name it is known in Jamaica, is not altogether flattering to legal gentlemen of Caledonian extraction.—*The American Naturalist*.

#### BRIEF EXISTENCE OF TROPICAL FLOWERS.

Botanical travellers in South America tell us that it is not uncommon to pass days travelling up the rivers without seeing any striking flowering tree or shrub. This is partly owing to the flowers of most tropical trees being so deciduous: *they no sooner open than they begin to fall*; the *Melastomas*, in particular, generally burst into flower in the morning, and the next day are withered; and for twelve months that tree bears no more flowers! How touching to a sensitive mind is this episode of fleeting existence!

#### ODOUR OF FLOWERS.

The idea that Perfumes of Flowers, believed to be universally delightful, should offend certain perceptions is often held up to ridicule and unbelief. But the following observations furnish evidence to correct this common error. They occur in Sir James Smith's valuable *Elements*. He describes himself as peculiarly affected by honeysuckles, which, however grateful in the open air, affected him in the house with violent pains in the temples, soon followed by sickness, and a partial loss of recollection. Yet the equally delicious and very similar fragrance of the Butterfly Orchis afforded him pleasure in the closest apartment. He could not perceive the scent of *Iris Persica*, though some find it extremely pleasant. Its flowers, nevertheless, affected him in a room almost to nausea and suffocation. The White Lily, Mezereon, Lilac, and Petunia—

Heliotrope, with many other scents delightful in the open air, were poison in the house; and he had seen a strong healthy man greatly distressed by one Carnation which had fallen down, and remained concealed by a piece of furniture, in a spacious airy drawing-room. It may be asserted, as a general rule, that plants of the same genus, or natural order, produce by the odour of their flowers a similar effect upon the same person. But this effect often varies in degree, according to any person's state of health. The blossoms of the Portugal Laurel, when abundant, exhale, in Sir James's opinion, a nauseous fœtor, which, in some of the same tribe, as hawthorn, is not too strong to be agreeable, partaking of an almond flavour. In a very different flower, *Bolemonium Caruleum*, a similar odour, though generally not very remarkable, has proved during illness quite intolerable in a room. Sir James concludes by observing, that roses are universally acceptable, and scarcely noxious to anybody; but, perhaps the odours of the various kinds of *Stapelia*, imitating carrion, rotten cheese, and foul water, may be better suited to the taste of the Hottentots, in whose country those singular plants abound. A botanist of Sir James's acquaintance could perceive no scent in any flower whatever.

#### LUMINOUS FLOWERS.

In July, 1820, Mr. Johnson had a fine plant, the *Polyanthus Tuberosa*, about five feet high, in blossom, in a room, which he observed emitted its effluvium most strongly after sunset. One sultry evening after thunder (it is believed, July 16, on which day the thermometer stood at 81° in the shade), when the atmosphere was evidently highly charged with the electric fluid, Mr. Johnson was surprised at seeing small sparks, or scintillations, of a lurid flame-colour, darted rapidly from two or three of the expanded flowers, which were beginning to fade; and at the same time the odour was so powerful as to be galling and unpleasant. Mr. Johnson subsequently noticed the smell of the flower to be most diffuse in the light. The emission of the flashes or sparks was not attended by a crackling or snapping noise, as is the case when the electric spark is elicited from a charging jar.

#### LIGHT FROM THE POTATO.

*The common Potato*, in a state of putrefaction, is said to give out a most vivid light, sufficient to read by. This was particularly remarked by an officer on guard, many years ago, at

Strasbourg, who thought the barracks were on fire, in consequence of the light emitted from a cellar full of potatoes.—*Jamieson's Journal*.

#### LIGHT FROM THE FRAXINELLA.

It is well known that when the Fraxinella is approached at night with a candle, it dashes forth little flashes of light. This has been usually attributed to the existence of an ethereal vapour, which surrounds this plant at the time of its flowering. M. Biot has shown the fallacy of such an opinion, and has proved that the phenomenon is the result of essential and inflammable oil, contained in small vessels at the extremities of the branches, which vessels burst at the approach of any inflamed body, setting at liberty the essential oil, as that contained in orange peel is set at liberty by pressure.

#### BRITISH LICHENS.

Lichens have been called the pioneers of nature, largely diffused over the face of the earth, and flourishing in situations which all other members of the vegetable world would shrink from occupying. We find them not only bearing the heat of the Tropics, but the cold of the Poles, ascending far beyond the snow line, and occurring at an elevation of 16,000 feet on Chimborazo, while they are the last type of vegetation met with on the Himalayas and in the deserts of Nova Zembla. In the regions near the equator, they reach their maximum as regards both development and number; and they find their minimum in the Arctic and Antarctic zones. Thus, while at Spitzbergen only 30 species exist, no less than 5,000 have been found in the island of Madagascar.

Lichens do not, as has been generally supposed, draw their sole nourishment from the atmosphere, but derive it also from this basis of support, almost all lichens being more or less united to the bodies on which they grow—the surface of the latter being frequently pierced and broken up by the tissues of the plant. The hardest calcareous rock, as well as the smoothest quartz, alike submit to this disintegrating process; and though the phenomenon has hitherto been unexplained, Dr. Lindsay thinks that it probably depends on some chemical action exerted on the rock by the lichen. Its growth is less affected by moisture, light, and temperature than any other plant, and it contrives to exist in situations where it is exposed to the extremes of cold and dryness. Lichens grow very slowly; but Dr. Lindsay

informs us that they attain an extreme age, and that some species growing on the primitive rocks of the highest ranges in the world are estimated to have attained an age of at least one thousand years; while one author mentions that he observed the same specimen of *Strita pulmonaria* on the same spot of the same tree after the lapse of half a century.—See Dr. Lindsay's *Popular History of British Lichens*.

#### THE OLDEST TREE IN THE WORLD.

Dr. T. W. Dawson, in a lecture delivered at the Royal Institution, has exhibited, by means of the electric light, a fragment of a large tree, of the genus *Protoxita*, being a portion of a trunk of probably *the Oldest known Tree in the World*, preserved by the infiltration of its tissues with silica. Dr. Dawson believes that the immense deposits of graphite in the Laurentian strata of Canada represent carbon of vegetable origin, probably in part produced by land-plants as yet unknown to us in any other way. As the palæozoic was the age of tree-like ferns and club-mosses, so the Laurentian may have been the age of forests of mosses and lichens towering to the height of trees—a period when vegetable life existed in its completest and grandest forms, in advance of the time when it was to be brought into subordination to the higher life of the animal. . . . We have much yet to learn of this period; but there remains a most wonderful and suggestive correlation—namely, that our minds are able to trace in these perished organisms structures similar to those of modern plants, and thus to reproduce in imagination the forms and habits of growth of living things which have so long preceded us on the earth.

#### THE OLDEST TREES IN THE WORLD.

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The cypress of Soma, or Somma, in Lombardy, is proved to have been a tree in the time of Julius Cæsar, B.C. 42; and the growth of 1,881 years is claimed for it. The dragon-tree, in the island of Teneriffe, is of 1,000 years' growth. The cypress of Hafir, near Shiraz, is said to have been by the poet himself; and by others, to have grown  
grave.

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